Note inst. in remarks column

Test scheet : SNF : 05.05.94 Edition replaces : 07.84 Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R172 Type number : 0 460 476 032

Customer Part-No. :

Customer-specific information

Customer

Engine

: WD 611.87

Power

KW: 81

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed Charge press. hPa: 800 Setting value mm: 3.50...3.90

Supply-pump pressure

1/min: 800 Speed Charge press hPa: 800

Setting value bar: 5.40...6.00

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 70.00...71.00

Dispersion cm3/: 3.5

1000s.: (3.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 53.50...54.50

Low-idle speed regulation

1/min: 250 Speed

Del. quantity cm3/ 1000s.: 16.00...20.00

Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1200 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 38.00...42.00

Start:

1/min: 100

Del. quantity cm3/: 65.00...125.00

1000s.: 65.00 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1130 Charge press hPa: 800

mm: 6.80...7.60 TD travel mm: (6.50...7.90)

3rd speed 1/min: 800 Charge press hPa: 800

TD travel mm: 3.50...3.90 mm: (3.00...4.40)

1/min: 600 4th speed hPa: 800 Charge press

mm: 1.40...2.20 TD travel mm: (1.10...2.50)

Supply-pump pressure characteristic:

1st speed 1/min: 1130 1st speed 1/mir: 1130 Charge press. hPa: 800 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Supply-pump pressure bar: 6.80...7.40 1/min: 800 2nd speed Idle delivery: Charge press. hPa: 800 Supply-pump 1st speed 1/min: 250 pressure bar: 5.40...6.00 Del. quantity cm3/: 16.00...20.00 3rd speed 1/min: 600 1000s.: (14.00...22.00) cm3/: 3.5 1000s.: (3.5) 1/min: 380 Charge press. hPa: 800 Dispersion Supply-pump bar: 4.40...5.00 pressure 2nd speed Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 330 Del. quantity cm3/: 2.00...10.00 Overlow quantity at overflow valve: 1st speed Overflow 1/min: 500 : 41.70...83.40 cm3/10s: (26.70...98.40) 1090s.: (2.00...10.60) quantity 2nd speed 1/min: 1130 Automatic starting fuel delivery: Charge press. hPa: 800 Overflow : 55.60...139.00 1st speed 1/min: 170 Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00) cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: 2nd speed 1/min: 250
Del. quantity cm3/: 26.00...50.00
1000s.: (26.00...50.00) 1nd speed 1/min: 500 Charge-air pressure-setting 4th speed 1/min: 100 Del. quantity cm3/: 65.00...125.00 1000S.: (65.00...125.00) hPa: 150 point LDA-stroke mm: 4.0 Del. quantity cm3/: 61.50...62.50 1000s.: (59.00...65.00) 1/min: 1310 2nd speed Mounting and assembly dimensions: Charge press. hPa: 800

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

3rd speed 1/min: 1250 Designation K mm: -KF mm: 5.2...5.5 Charge press. hPa: 800 MS mm: 1.3...1.5 Del. quantity cm3/: 10.00...26.00 SVS max. mm: 4.0 1000s.: (10.00...26.00) LDA stroke mm: 4.0 mm: 37.2...39.2 mm: 48.2...56.2 1/min: 1200 5th speed Ya Charge press. hPa: 800
Del. quantity cm3/: 38.00...42.00
1000s.: (34.00...45.00)
9th speed 1/min: 1130 Yb Remarks: Charge press. hPa: 800 Del. quantity cm3/: 72.00...76.00 1000S.: (71.00...77.00) Operate control lever after each manifold-pressure compensator pressure 12th speed 1/min: 800 change. Charge press. hPa: 800
Del. quyntity cm3/: 70.00...71.00
1000s.: (68.00...73.00)
18th speed 1/min: 500 * Correction at adjusting nut Charge press. hPa: -Del. quantity cm3/: 53.50...54.50 1000s.: (51.50...56.50) Mech. shutoff: Mech. Abstellung:

Note inst. in remarks column

Test scheet

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/11F1125R546 Type number : 0 460 416 075

Customer Part-No. :

Customer-specific information

"DI" Customer : IVECO-FIAT

Engine : 8065.25.230

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-cil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing device travel

Speed 1/min: 800 Charge press. hPa: 1000

mm: 1.10...1.50 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 650 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 78.50...79.50

Shutoff

electromagnet Volt: 12 cm3/: 3.5 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed Del. quantity cm3/ 1000s.: 48.00...49.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s : 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 1170 Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 80.00...140.00

mind 1000s.: 80.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

TD travel mm:	930 1000 2.002.80 (1.503.30)	+ + + + + + + + + + + + + + + + + + +	Charge-air pressure- point hPa: LDA-stroke mm: Shutoff	360
Shutoff electromagnet Volt: 3rd speed 1/min:	12 800	+	<pre>electromagnet Volt: Del. quantity cm3/:</pre>	
TD travel mm:	1000 1.101.50 (0.402.20)	† † †	2nd speed 1/min: Charge press. hPa: Shutoff	1000
Shutoff electromagnet Volt: 5th speed 1/min:	1050	†		0.003.00 (0.003.00)
Charge press. hPa: TD travel mm: mm: Shutoff	2.903.70 (2.404.20)	+	5th speed 1/min: Charge press. hPa: Shutoff	1000
electromagnet Volt:		-		27.0033.00 (24.0036.00)
Supply-pump pressure 1st speed 1/min:		‡	8th speed 1/min: Charge press. hPa: Shutoff	
Supply-pump	1000 5.105.70	†	electromagnet Volt: Del. quantity cm3/:	
Shutoff electromagnet Volt: 2nd speed 1/min:	12	+	9th speed 1/min: Charge press. hPa:	1050
Charge press. hPa: Supply-pump	1000	+	Shutoff electromagnet Volt: Del. quantity cm3/:	65.5068.50
Shutoff electromagnet Volt:		+ +	1000S.: 12th speed 1/min: Charge press. hPa:	
3rd speed 1/min: Charge press. hPa: Supply-pump		†	Shutoff electromagnet Volt: Del. quyntity cm3/:	
	7.708.30	+		(75.5082.50) 500
Overlow quantity at		+	Shutoff electromagnet Volt: Del. quantity cm3/:	12
1st speed 1/min: Charge press. hPa: Shutoff		T †	1000s.: 20th speed 1/min:	(45.0052.00) 500
<pre>electromagnet Volt: Overflow :</pre>	41.7083.40	+	Charge press. hPa: Shutoff electromagnet Volt:	12
quantity cm3/10s: 2nd speed 1/min: Charge press. hPa:	1050	+		81.0085.00 (79.5086.50)
Shutoff electromagnet Volt: Overflow:	12 55.60139.00	+	Mech. shutoff: Mech. Abstellung:	
quantity cm3/10s: Delivery-quant. and	(40.60154.00)	+	1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	1000
	·	+	1000s.: Shutoff	(0.003.00)
1nd speed 1/min:) i)	Ţ	electromagnet volt:	12

Electr. shutoff:

1/min: 300 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...11.00

1000S.: (4.00...14.00)

Dispersion cm3/: 6.0

1000s.: (6.0) 1/min: 375 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: MIND.95

1000s.: -

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...60.00

1000s.: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

: 10.0 min voltage

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 K

KF mm: 5.4

MS

Ya

mm: 2.0...2.4 mm: 34.9...36.9 mm: 38.3...43.5 Yb

Remarks:

Yb = Distance between VE flange and speed-control lever in rated speed Measurement point = edge of control

lever on distributor-head end

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

Note inst. in remarks column

Test scheet : VMA

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R583 Type number : 0 460 416 077

Customer Part-No. :

Customer-specific information

Customer : VM

: D706 LT Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 450

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed Charge press. hPa: 1200

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200

Charge press hPa: 1200 Setting value bar: 7.10...7.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5

1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/ 1000s.: 55.50...56.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/ 1000S.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500 Charge press hPa: 1200

Del. quantity cm3/ 1000s.: 48.00...52.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...80.00 mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1200 Speed Charge press hPa: -

Injqty. cm3/	+	Charge press. hPa:	1200
difference 1000s.: -15.021.0 #	+	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt: 12	1	Overflow :	102.70 147.20
TD-travel dif.measurement	1	quantity cm3/10s:	
correttore anticipo iniezione (SV)	1	2nd speed 1/min:	
1. Speed 1/min: 1200	1	Charge press. hPa:	
Charge press hPa: -	\perp	Shutoff	1200
TD-travel	L	electromagnet Volt:	12
difference mm: -0.91.1 #	Ι	Overflow :	97.20180.50
Shutoff	T	quantity cm3/10s:	/02 20 40E EDV
electromagnet Volt: 12	T	quantity (113) 105:	(02.20195.50)
etectionagnet vott. 12	T	Doldvani miamt and	handler or all all a
Incorportion number of sections	T	Delivery-quant. and	preakaway char.:
Inspection-pump test specifications	†		
Test specifications in parentheses	Ť	4	//0
Timing devices about the state of	†	1nd speed 1/min:	
Timing-device characteristic:	†	Charge-air pressure	-setting
4.4 1 6/1 4700	†	point hPa:	
1st speed	+	LDA-stroke mm:	-
Charge press hPa: 1200	+	Shutoff	
TD travel mm: 2.703.50	+	electromagnet Volt:	12
mm: (2.204.00)	+	Del. quantity cm3/:	75.0076.00
electromagnet Volt: 12	+		(72.5078.50)
2nd speed 1/min: 1200	+	2nd speed 1/min:	
Charge press hPa: 1200	+	Charge press. hPa:	1200
TD travel mm: 2.402.80	+	Shutoff	
mm: (1.903.30)	+	electromagnet Volt:	12
Shutoff	+	Del. quantity cm3/:	
electromagnet Volt: 12	+	1000s.:	
3rd speed 1/min: 1000	+	3rd speed 1/min:	
Charge press hPa: 1200	+	Charge press. hPa:	
TD travel mm: 1.302.10	1	Shutoff	, 200
mm: (0.802.60)	1	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	22 00 38 00
electromagnet Volt: 12	1	10005	(20.0040.00)
Total and the face.	1	4th speed 1/min:	
Supply-pump pressure characteristic:	1	Charge press. hPa:	
supply pump pressure unaracter racte.	1	Shutoff	1200
1st speed 1/min: 500	1	electromagnet Volt:	12
Charge press. hPa: 1200	1	Del. quantity cm3/:	
Supply-pump	1		(44.0056.00)
pressure bar: 4.705.30	I	5th speed 1/min:	
Shutoff	Τ		
electromagnet Volt: 12	T	Charge press. hPa: Shutoff	1200
	T		10
	T	electromagnet Volt:	7/ 00 70 00
Charge press. hPa: 1200	+	Del. quantity cm3/:	74.0078.00
Supply-pump	†		(72.5079.50)
pressure bar: 7.107.70	†	6th speed 1/min:	
Shutoff	†	Charge press. hPa:	1200
electromagnet Volt: 12	+	Shutoff	4.4
3rd speed 1/min: 1300	+	electromagnet Volt:	
Charge press. hPa: 1200	+	Del. quantity cm3/:	
Supply-pump	+		(73.5079.50)
pressure bar: 7.508.10	+	7th speed 1/min:	
Shutoff	+	Charge press. hPa:	1200
electromagnet Volt: 12	+	Shutoff	
	+	electromagnet Volt:	12
Overlow quantity at overflow valve:	+	Del. quantity cm3/:	76.5083.50
	+		(75.0085.00)
1st speed 1/min: 500	+	8th speed 1/min:	
	•	•	

Charge press. hPa: 1200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 86.00...90.00 1000s.: (84.50...91.50) 9th speed 1/min: 600 2nd speed 1/min: 200 Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 electromagnet Volt: 12 Del. quantity cm3/: 55.50...56.50 1000s.: (70.00...130.00) 1000s.: (53.00...59.00) 1/min: 100 4th speed Mech. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 Electr. shutoff: 1000s.: (40.00...80.00) 1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet: 1000s.: (0.00...3.00) Shutoff Cut-in electromagnet volt: min voltage : 10.0 Rated voltage : 12.0 Idle delivery: Mounting and assembly dimensions: 1st speed 1/min: 300 Shutoff Designation electromagnet Volt: 12 mm: 3.2...3.4 Del. quantity cm3/: 7.00...11.00 KF mm: KOT 1000s.: (4.00...14.00) mm: 1.0...1.3 MS1 cm3/: 5.0 mm: 38.6...40.6 mm: 60.5...71.5 Dispersion Ya 1000s.: (5.0) Yb 1/min: 400 2nd speed Shutoff Remarks: electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Ya = Distance between VE flange and speed-control lever in idle Load-dependent start of delivery: position Inj.-qty.dif.measurement: Measurement point = edge of control lever on drive end 1st speed 1/min: 1200 Charge press. hPa: Inj.-qty. cm3/ : -11.0.-13.0 "
difference 1000s.: -Yb = Distance between VE flange and speed-control lever in rated speed Shutoff position electromagnet Volt: 12 Measurement point = edge of control lever on distributor-head end SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: -Supply pump-Operate control lever after each pressure : -0.1..-0.3 " manifold-pressure compensator pressure difference bar: change. Shutoff electromagnet Volt: 12 * Correction at adjusting nut Automatic starting fuel delivery: 1st speed 1/min: 500

Note inst. in remarks column

Test scheet

: 05.05.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R586 Type number : 0 460 416 078

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

Engine : 8065.05.240

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000S.: (4.0)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000S.: (4.0)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...130.00

1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 800

TD travel mm: 2.20...2.60 mm: (1.70...3.10)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

mm: 1.00...1.80 mm: (0.70...2.10) TD travel

Shutoff

electromagnet Volt: 12 1/min: 1150 5th speed

TD travel mm: 2.90...3.70 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 61.00...64.00 1000s.: (59.00...66.00) mm: (2.60...4.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 500 Supply-pump pressure bar: 4.70...5.30 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 2nd speed 1/min: 800 Shutoff electromagnet volt: 12 Supply-pump pressure bar: 6.20...6.80 Electr. shutoff: Shutoff electromagnet Volt: 12 4th speed 1/min: 1150 Supply-pump bar: 7.70...8.30 pressure Shutoff Shutoff electromagnet volt: electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 300 1/min: 500 1st speed Shutoff electromagnet Volt: 12

Del. quantity cm3/: 10.00...14.00

1000s.: (8.00...16.00)

Dispersion cm3/: 3.5 Shutoff electromagnet Volt: 12 : 41.70...86.10 Overflow cm3/10s: (26.70...101.10) 1/min: 1150 quantity 2nd speed 1000s.: (4.0) Shutoff 2nd speed 1/min: 400 electromagnet Volt: 12 Shutoff Overflow : 55.60...139.00 electromagnet Volt: 12 cm3/10s: (40.60...154.00) Del. quantity cm3/: 0.00...3.00 quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Automatic starting fuel delivery: 1/min: 1350 2nd speed 1st speed 1/min: 150 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 Del. quantity cm3/: 75.00...135.00 1000s.: (75.00...135.00) 1/min: 1250 5th speed Shutoff 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 56.50...59.50
1000s.: (54.50...61.50) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 1/min: 700 12th speed Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 64.50...65.50 Shutoff electromagnet: 1000s.: (61.00...67.00) 1/min: 500

A10

20th speed

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.4 mm: 1.1...1.3 Ya mm: 36.5...38.5 Yb mm: 43.7...48.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in reserks column

Test scheet PER

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE3/12F1125R531 Type number : 0 460 423 001

Customer Part-No. :

Customer specific information : PERKINS

Customer

Engine

: 3.152 R49

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 109

Opening

bar: 207.00...210.00 Pressure

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Injection pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 950 Speed

Setting value mm: 0.80...1.20

Supply-pump pressure

1/min: 950 Speed

Setting value bar: 6.30...6.90

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 65.50...66.50

Dispersion cm3/: 3.5

1000s.: (3.5)

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000S.: 13.00...17.00 Del. quantity cm3/: 3.0 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 17.00...23.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00 mind 1000s.: 60.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1125

mm: 1.30...2.10 TD travel

mm: (1.00...2.40) 1/min: 900

3rd speed

mm: 0.10...0.90 TD travel

mm: (0.00...1.20)

4th speed 1/min: 950

TD travel mm: 0.80...1.20

mm: (0.30...1.70)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 4.00...4.60 1/min: 950 pressure

2nd speed

Supply-pump

pressure bar: 6.30...6.90

3rd speed 1/min: 1125

Supply-pump

bar: 7.10...7.70 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 700 Overflow : 41.70...83.40 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 1125 : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char .: 1/min: 1300 1nd speed Del. quantity cm3/: 0.00...3.00 1000s.: -2nd speed 1/min: 1250
Del. quantity cm3/: 17.00...23.00
1000S.: (12.00...28.00)
3rd speed 1/min: 1220
Del. quantity cm3/: 45.00...65.00 1000s.: -4th speed 1/min: 1125
Del. quantity cm3/: 58.00...62.00
1000s.: (56.50...63.50) 1/min: 700 5th speed Del. quantity cm3/: 65.50...66.50 1000s.: (63.00...69.00) 1/min: 500 6th speed Del. quantity cm3/: 64.50...68.50 1000s.: (63.00...70.00) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1125 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1000s.: (11.0...19.0) cm3/: 3.0Dispersion 1000s.: (3.0) 1/min: 325 2nd speed Del. quantity cm3/: 6.00...14.0 1000s.: (5.00...15.0) 3rd speed 1/min: 375
Del. quantity cm3/: 0.00...3.00
1000s.: -Automatic starting fuel delivery: 1st speed 1/min: 180 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00) 2nd speed 1/min: 280
Del. quantity cm3/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00) Mounting and assembly dimensions: Designation mm: -KF mm: KOT MS mm: 0.7...0.9 XK mm: 37.2...39.2 mm: 52.1...60.1 XL Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : MWM

: 05.05.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE3/12F1125R532

Type number : 0 460 423 002

Customer Part-No. :

Customer-specific information

Customer

Engine : TD 226-B3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 1.60...2.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800

Setting value bar: 6.70...7.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900

Del. quantity cm3/

1000s.: 85.50...86.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/ 1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (6.5)

Full-load speed regulation

1/min: 1170

Del. quantity cm3/ 1000s.: 52.00...58.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 109.0...111.0

1000s.: 102.0 mind

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900

mm: 2.20...3.00 TD travel

mm: (1.90...3.30)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 800

TD travel mm: 1.60...2.00

mm: (1.10...2.50)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

TD travel mm: 0.70...1.50 Shutoff mm: (0.40...1.80) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 81.50...84.50 1000s.: (80.00...86.00) 7th speed 1/min: 900 1/min: 550 1st speed Supply-pump bar: 5.60...6.20 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.5...86.5 1000s.: (83.5...88.5) electromagnet Volt: 12 2nd speed 1/min: 800 Supply-pump bar: 6.70...7.30 pressure 8th speed 1/min: 550 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.0...91.0 1000S.: (84.0...92.0) electromagnet Volt: 12 3rd speed 1/min: 1100 Supply-pump pressure bar: 7.80...8.40 Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstelluna: Overlow quantity at overflow valve: 1st speed 1/min: 550 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 102.7...147.2 Overflow cm3/10s: (87.70...162.2) quantity Electr. shutoff: 2nd speed 1/min: 1100 Shutoff 1/min: 350 1st speed electromagnet Volt: 12 Del. quantity cm3/: 0.0...3.0 : 97.20...180.50 cm3/10s: (82.20...195.50) Overflow 1000s.: quantity Shutoff electromagnet volt: -Delivery-quant. and breakaway char.: Idle delivery: 1/min: 1280 1nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: -1/min: 1240 2nd speed 2nd speed 1/min: 450 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Del. quantity cm3/: 0.0...15.0 1000s.: -1000s.: -1/min: 1190 3rd speed Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: electromagnet Volt: 12 Del. quantity cm3/: 15.00...45.00 Automatic starting fuel delivery: 1000s.: -1/min: 1170 4th speed 1/min: 250 1st speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...58.00 1000\$.: (46.50...63.50) electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.00 1000s.: (120.0...160.00) 1/min: 1100 5th speed

2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00...135.0 1000s.: (85.00...135.0) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 109.0...111.0 1000s.: (109.0...111.0) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7 KF mm: KOT MS1 mm: 1.0...1.3 XK mm: 41.4...45.4 XL mm: 37.0...43.0

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : CUM 3,9 D1 Edition : 28.04.94 replaces : 16.07.91 Calibratina oil : ISO-4113

Injection pump : VE4/12F1050R230-3 Type number : D 460 424 033

Customer Part-No. :

Customer-specific information

Customer

Engine

: 4 BTA-390 IND

Power KW: 79 1/min: 2100 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina .

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1.55 Piston stroke

mm: +-0.04(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed

Charge press. hPa: 1000 Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750 Charge press hPa: 1000 Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 83.00...84.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed Del. quantity cm3/ 1000S.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1100 Charge press hPa: 1000 Del. quantity cm3/

1000s.: 59.00...65.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00

Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Overflow : 55.60...139.00 Inspection-pump test specifications Test specifications in parentheses cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: Timing-device characteristic: 1/min: 1050 2nd speed 1nd speed 1/min: 700* Charge press hPa: 1000 Charge-air pressure-setting mm: 4.70...5.50 TD travel hPa: 350 mm: (4.40...5.80) mm: 6,8 LDA-stroke Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 79.50...80.50 1000s.: (76.00...84.00) electromagnet Volt: 12 1/min: 750 3rd speed hPa: 1000 mm: 3.40...3.80 Charge press TD travel 1/min: 1120 2nd speed mm: (2.90...4.30) Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00) electromagnet Volt: 12 1/min: 500 4th speed Charge press hPa: 1000 TD travel mm: 1.70...2.50 4th speed 1/min: 1180 Charge press. hPa: 1000 Shutoff mm: (1.40...2.80) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 mm: 0.00...6.40 TD travel mm: (0.00...1.00) 1/min: 1100 5th speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff 1st speed 1/min: 500 electromagnet Volt: 12 Charge press. hPa: 1000 Del. quantity cm3/: 59.00...65.00 1000S.: (56.00...68.00) 9th speed 1/min: 1050 Supply-pump pressure bar: 3.90...4.50 Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 3rd speed 1/min: 750 electromagnet Volt: 12 Del. quantity cm3/: 76.50...79.50 Charge press. hPa: 1000 Supply-pump 1000s.: (75.00...81.00) pressure bar: 5.00...5.60 1/min: 900 12th speed Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 1/min: 1050 4th speed Charge press. hPa: 1000 Supply-pump bar: 6.30...6.90 pressure Shutoff Charge press. hPa: electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 63.50...64.50 Overlow quantity at overflow valve: 1000s.: (60.00...68.00) 1st speed 1/min: 500 Charge press. hPa: -Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) 1/min: 1050 quantity 2nd speed 1000s.: (0.00...3.00)

Charge press. hPa: 1000

Shutoff

electromagnet volt: 12

Electr. shutoff:

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000S.: (6.00...16.00) cm3/: 5.5

Dispersion

1000s.: (7.0)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 10.00...50.00 1000s.: (10.00...50.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5,1...5,4 mm: 1,1..1,35 mm: 2,2 KF

MS

SVS max.

LDA stroke mm: 6.8

A19

XK XL mm: 20.2...22.2 mm: 11.9...15.3

Remarks:

: C.D.C. # 3 909 593

Operate control lever after each

manifold pressure compensator pressure

change.

* Correction at adjusting nut

Note inst. in remarks column

Test scheet : PER

Edition : 05.05.94 : 15.06.92 replaces Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280 : 0 460 424 037 Type number

Customer-specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating oil return temo.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening |

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 950 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 950 Speed hPa: 1000 Charge press

Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1430 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed hPa: 1000 Charge press

mm: 2.00...2.80 TD travel mm: (1.70...3.10)

electromagnet Volt: 12 2nd speed 1/min: 950

Charge press hPa: 1000	+	Shutoff	
TD travel mm: 1.802.20	+	electromagnet Volt:	
mm: (1.302.70)	+	Del. quantity cm3/:	
Shutoff electromagnet Volt: 12	Ť		(0.003.00)
3rd speed 1/min: 950	T		
Charge press hPa: 1000	T	Charge press. hPa: Shutoff	1000
TD travel mm: 0.601.40	Ι		12
mm: (0.301.70)	T	<pre>electromagnet Volt: Del. quantity cm3/:</pre>	1/ 00 22 00
Shutoff	Ι	1000 ·	(11.0025.00)
electromagnet Volt: 12	I	4th speed 1/min:	
cesser anagree vace. 12	Ι	Charge press. hPa:	
Supply-pump pressure characteristic:	I	Shutoff	1000
ouppey purp pressure that deter rathe.	1	electromagnet Volt:	12
1st speed 1/min: 1300	1	Del. quantity cm3/:	47 00 53 00
Charge press. hPa: 1000	1	10005	(44.0056.00)
Supply-pump	1	5th speed 1/min:	
pressure bar: 6.006.60	1	Charge press. hPa:	
Shutoff	1	Shutoff	1000
electromagnet Volt: 12	1	electromagnet Volt:	12
2nd speed 1/min: 950	1	Del. quantity cm3/:	
Charge press. hPa: 1000	1		(86.5092.50)
Supply-pump	1	6th speed 1/min:	
pressure bar: 4.605.20	1	Charge press. hPa:	
Shutoff	1	Shutoff	1000
electromagnet Volt: 12	1	electromagnet Volt:	12
3rd speed 1/min: 500	1	Del quantity cm3/:	93 00 94 00
Supply-pump	1	Del. quantity cm3/: 1000s.:	(90.50 96.50)
pressure bar: 2.703.30	1	7th speed 1/min:	700
Shutoff	1	Charge press. hPa:	
electromagnet Volt: 12	+	Shutoff	
-	+	electromagnet Volt:	12
Overlow quantity at overflow valve:	+	Del. quantity cm3/:	84.5085.50
	+	1000s.:	(82.0088.00)
1st speed 1/min: 500	+	8th speed 1/min:	700
Charge press. hPa: -	+	Charge press. hPa:	1000
Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	12
Overflow : 41.7083.40	+	Del. quantity cm3/:	92.0096.00
quantity cm3/10s: (26.7098.40)	+		(91.0097.00)
2nd speed 1/min: 1300	+	9th speed 1/min:	
Charge press. hPa: 1000	+	Charge press. hPa:	-
Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	
Overflow : 55.50139.00	+	Del. quantity cm3/:	
quantity cm3/10s: (40.50154.00)	+	1000s.:	(74.5080.50)
Baldinan and translation of	+		
Delivery-quant. and breakaway char.:	+	Mech. shutoff:	
	+	Mech. Abstellung:	
1mal accord 1/min 2001	+		4700
1nd speed 1/min: 700*	+	1st speed 1/min:	
Charge-air pressure-setting	†	Charge press. hPa:	
point hPa: 300	-4	Del. quantity cm3/:	
	•		
LDA-stroke mm: 7.0	+		(0.003.00)
Shutoff	+	Shutoff	
Shutoff electromagnet Volt: 12	+++++++++++++++++++++++++++++++++++++++		
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.0090.00	+++++++++++++++++++++++++++++++++++++++	Shutoff electromagnet volt:	
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.0090.00 1000S.: (86.5092.50)	+++++++++++++++++++++++++++++++++++++++	Shutoff	
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.0090.00	+++++++++++++++++++++++++++++++++++++++	Shutoff electromagnet volt:	12

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) cm3/: 5.0 Dispersion 1000s.: (5.0) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...15.00 1000s.: (7.00...17.00) 3rd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60)

Automatic starting fuel delivery:

1/min: 150 1st speed Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00)

1/min: 250 2nd speed Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 62.00...72.00 1000s.: (62.00...72.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00

1000s.: (95.00...145.00)

Shutoff electromagnet:

Cut-in

: 10.0 min voltage Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: K-OT mm: 1.1...1.5 MS LDA stroke mm: 7.0 Ya mm: 37.2...39.2 Yb mm: 47.2...55.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PER Edition : 05.05.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280 Type number : 0 460 424 037 Customer Part-No. : 2 643 H05 5

Customer—specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., par : 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 950 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 950 Charge press hPa: 1000 Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1530 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300

Charge press hPa: 1000

TD travel mm: 2.00...2.80 mm: (1.70...3.10)

electromagnet Volt: 12

2nd speed 1/min: 950 Charge press hPa: 1000	+ Charge press. hPa: 1000 + Shutoff
TD travel mm: 1.802.20	+ electromagnet Volt: 12
mm: 1.302.70	+ Del. quantity cm3/: 0.003.00
Shutoff	
	10005.: (0.003.00)
electromagnet Volt: 12	+ 3rd speed 1/min: 1600
3rd speed 1/min: 500	+ Charge press. hPa: 1000
Charge press hPa: 1000	† Shutoff
TD travel mm: 0.601.40	+ electromagnet Volt: 12
mm: 0.301.70	+ Del. quantity cm3/: 11.0019.00
Shutoff	† 1000s.: (8.0022.00)
electromagnet Volt: 12	+ 4th speed 1/min: 1530
•	Charge press. hPa: 1000
Supply-pump pressure characteristic:	+ Shutoff
and the second of the second o	electromagnet Volt: 12
1st speed 1/min: 1300	
Charge press. nPa: 1000	+ Del. quantity cm3/: 47.0053.00
	1000\$.: (44.0056.00)
Supply-pump	+ 5th speed 1/min: 1300
pressure bar: 6.006.60	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 950	+ Del. quantity cm3/: 87.7091.30
Charge press. hPa: 1000	+ 1000S.: (86.5092.50)
Supply-pump	+ 6th speed 1/min: 1000
pressure bar: 4.605.20	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 500	Del. quantity cm3/: 93.0094.00
Supply-pump	1000S.: (90.5094.50)
	7th speed 1/min: 700
Shutoff	+ Charge press. hPa: -
electromagnet Volt: 12	+ Shutoff
	+ electromagnet Volt: 12
Overlow quantity at overflow valve:	+ Del. quantity cm3/: 84.5085.50
•	+ Del. quantity cm3/: 84.5085.50 + 1000S.: (82.0088.00)
1st speed 1/min: 500	+ Del. quantity cm3/: 84.5085.50
•	+ Del. quantity cm3/: 84.5085.50 + 1000S.: (82.0088.00) + 8th speed 1/min: 700
1st speed 1/min: 500	+ Del. quantity cm3/: 84.5085.50 + 1000S.: (82.0088.00) + 8th speed 1/min: 700 + Charge press. hPa: 1000
1st speed 1/min: 500 Charge press. hPa: - Shutoff	- Del. quantity cm3/: 84.5085.50 - 1000S.: (82.0088.00) - 8th speed 1/min: 700 - Charge press. hPa: 1000 - Shutoff
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12	- Del. quantity cm3/: 84.5085.50 - 1000S.: (82.0088.00) - 8th speed 1/min: 700 - Charge press. hPa: 1000 - Shutoff - electromagnet Volt: 12
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow: 41.7083.40	- Del. quantity cm3/: 84.5085.50 - 1000S.: (82.0088.00) - 8th speed 1/min: 700 - Charge press. hPa: 1000 - Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 92.0096.00
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40)	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00)
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: -
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff	- Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12	- Del. quantity cm3/: 84.5085.50 - 1000S.: (82.0088.00) 8th speed 1/min: 700 - Charge press. hPa: 1000 - Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 92.0096.00 - 1000S.: (91.0097.00) 9th speed 1/min: 500 - Charge press. hPa: - - Shutoff - electromagnet Volt: 12
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12	- Del. quantity cm3/: 84.5085.50 - 1000S.: (82.0088.00) 8th speed 1/min: 700 - Charge press. hPa: 1000 - Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 92.0096.00 - 1000S.: (91.0097.00) 9th speed 1/min: 500 - Charge press. hPa: - - Shutoff - electromagnet Volt: 12
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50)
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff:
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50)
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff:
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff:
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung:
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 Shutoff
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 12	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.0090.00	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 T000S.: (0.003.00) Shutoff electromagnet volt: 12
1st speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 12	Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 8th speed 1/min: 700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.0096.00 1000S.: (91.0097.00) 9th speed 1/min: 500 Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.5079.50 1000S.: (74.5080.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 Shutoff

1000s : (0.00 . . . 3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) cm3/: 5.0 1000s.: (5.0) Dispersion 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...15.00 10005: (7.00...17.00) 1/min: 400 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1/min: 150 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 62.00...72.00 1000s.: (62.00...72.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: K-OT mm: 1.1...1.5 MS

mm: 7.0

mm: 37.2...39.2

Yb mm: 47.2...55.6 Remarks: : REGELFEDER : 1 464 650 366 Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end Operate control lever after each manifold-pressure compensator pressure change. * Correction at adjusting nut

Ya

LDA stroke

Note inst. in remarks column

Test scheet

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/1251300R280 Type number : 0 460 424 037 Customer Part-No.: 2 643 H06 7

Customer-specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 950 Charge press. hPa: 1000 Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 950 Charge press hPa: 1000 Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1430 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 95.00...145.00

1000s.: 95.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed Charge press hPa: 1000

mm: 2.00...2.80 TD travel mm: (1.70...3.10) electromagnet Volt: 24

2nd speed 1/min: 950	+ Ch	arge press. hPa:	1000
Charge press hPa: 1000		utoff	
TD travel mm: 1.802.20	+ el	ectromagnet Volt:	24
mm: (1.302.70)	+ De	el. quantity cm3/:	0.003.00
Shutoff	+		(0.003.00)
electromagnet Volt: 24		d speed 1/min:	
3rd speed 1/min: 850	+ Ch	arga press. hPa:	1000
Charge press hPa: 1000	+ Sh	utoff	
TD travel mm: 0.601.40	+ el	ectromagnet Volt:	24
mm: (0.301.70)	+ De	el. quantity cm3/:	
Shuroif	+		(8.0022.00)
electromagnet Volt: 24	+ 4t	th speed 1/min:	1430
	+ Ch	arge press. hPa:	1000
Supply-pump pressure characteristic:		utoff	
		ectromagnet Volt:	
1st speed 1/min: 1300	} De	eL. quantity cm3/:	47.0053.00
Charge press. hPa: 1000	+	1000s.:	(44.0056.00)
Supply-pump	+ 5t	h speed 1/min:	1300
pressure bar: 6.006.60	† Շհ	arge press. hPa:	1000
Shutoff	∔ Sh	utoff	
electromagnet Volt: 24		ectromagnet Volt:	
2nd speed 1/min: 950	↑De	el. quantity cm3/:	
Charge press. hPa: 1000	+		(86.5092.50)
Supply-pump		h speed 1/min:	
pressure bar: 4.605.20	∔ Ch	arge press. hPa:	1000
Shutoff	+ Sh	utoff	
electromagnet Volt: 24		ectromagnet Volt:	
3rd speed 1/min: 500	+ De	el. quantity cm3/:	93.0094.00
Supply-pump	+		(90.5096.50)
pressure bar: 2.703.30	+ 7t	h speed 1/min:	700
Shutoff		arge press. hPa:	-
electromagnet Volt: 24		utoff	
On the control of the		ectromagnet Volt:	
Overlow quantity at overflow valve:	† De	l. quantity cm3/:	
1-t 1	†		(82.0088.00)
1st speed 1/min: 500		h speed 1/min:	
Charge press. hPa: — Shutoff	† (n	arge press. hPa:	1000
electromagnet Volt: 24		utoff	42
Overflow : 41.7083.40	T et	ectromagnet Volt:	02.00 07.00
quantity cm3/10s: (26.7098.40)	† be	l. quantity cm3/:	
2nd speed 1/min: 1300	Ta		(91.0097.00)
Charge press. hPa: 1000		h speed 1/min: arge press. hPa:	
Shutoff	T U!!	alue Diess. IIIa.	_
electromagnet Volt: 24	ch	utoff	
	+ Sh	utoff	2/.
Overflow • 55 50 139 00	+ Sh + el	utoff ectromagnet Volt:	
Overflow : 55.50139.00	+ Sh + el	utoff ectromagnet Volt: l. quantity cm3/:	75.5079.50
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	+ Sh + el	utoff ectromagnet Volt: l. quantity cm3/:	
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	+ Sh + el + De	utoff ectromagnet Volt: l. quantity cm3/: 1000S.:	75.5079.50
Overflow : 55.50139.00	Sh el De	utoff ectromagnet Volt: el. quantity cm3/: 1000S.:	75.5079.50
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	Sh el De	utoff ectromagnet Volt: l. quantity cm3/: 1000S.:	75.5079.50
Overflow: 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.:	Sh el	utoff ectromagnet Volt: el. quantity cm3/: 1000s.: ech. shutoff: ech. Abstellung:	75.5079.50 (74.5080.50)
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting	Sh el De De Me Me	utoff ectromagnet Volt: l. quantity cm3/: 1000s.: ch. shutoff: ch. Abstellung: t speed 1/min:	75.5079.50 (74.5080.50)
Overflow: 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed: 1/min: 700	Sh el De Me Me Me 1s ch	utoff ectromagnet Volt: l. quantity cm3/: 1000s.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa:	75.5079.50 (74.5080.50) 1300 1000
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0	Sh el De Me Me Me 1s ch	utoff ectromagnet Volt: l. quantity cm3/: 1000s.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa: l. quantity cm3/:	75.5079.50 (74.5080.50) 1300 1000
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff	Sh el el De Me Me 1s Ch De	utoff ectromagnet Volt: l. quantity cm3/: 1000s.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa: l. quantity cm3/:	75.5079.50 (74.5080.50) 1300 1000 0.003.00
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 24	Sh ele De Me Me 1sh Ch De Sh	utoff ectromagnet Volt: l. quantity cm3/: 1000S.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa: l. quantity cm3/: 1000S.:	75.5079.50 (74.5080.50) 1300 1000 0.003.00 (0.003.00)
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 89.0090.00	Shell De Me Shell Shell	utoff ectromagnet Volt: 1. quantity cm3/: 1000S.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa: 1000S.: utoff ectromagnet volt:	75.5079.50 (74.5080.50) 1300 1000 0.003.00 (0.003.00)
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 Shutoff electromagnet Volt: 24	Shell De Me Shell Shell	utoff ectromagnet Volt: 1. quantity cm3/: 1000S.: ch. shutoff: ch. Abstellung: t speed 1/min: arge press. hPa: 1. quantity cm3/: 1000S.: utoff	75.5079.50 (74.5080.50) 1300 1000 0.003.00 (0.003.00)

1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 1000S.: (0,00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) cm3/: 5.0 1000s.: (5.0) 1/min: 350 Dispersion 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 9.00...15.00 1000s.: (7.00...17.00) 3rd speed 1/min: 400 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) 1/min: 250 2nd speca Shuto electromagnet Volt: 24 Del. quantity cm3/: 62.00...72.00 1000s.: (62.00...72.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: K-OT

mm: 1.1...1.5

mm: 37.2...39.2

mm: 7.0

Yb mm: 47.2...55.6 Remarks: Operate control lever after each manifold-pressure compensator pressure change. * Correction at adjusting nut Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

A28

MS

Ya

LDA stroke

Note inst. in remarks column

Test scheet : CUM 3.9 P43 Edition : 22.04.94 : 14.04.92 replaces Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R378-7 Type number : 0 460 424 074

Customer Part-No. :

Customer-specific information

Customer : CASE

Engine : 4 BT-390 580K

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDE): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.8

mm: +-0.04(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2.30...2.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1170 Speed

Del. quantity cm3/

1000s.: 31.50...38.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 1100 mm: 3.10...3.90 mm: (2.80...4.20) TD travel

Shutoff

electromagnet Volt: 12 1/min: 900 3rd speed

B01

mm: 2.30...2.70 mm: (1.80...3.20) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.50...63.50 1000s.: (59.00...65.00) Shutoff electromagnet Volt: 12 7.Rotacao 1/min: 650 1/min: 900 10th speed TD travel mm: 0.70...1.50 Shutoff mm: (0.40...1.80) ele anet Volt: 12 .ity cm3/: 60.80...63.80 1000s.: (58.80...65.80) ed 1/min: 750 Shutoff Del. electromagnet Volt: 12 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 63.50...64.50 1000s.: (61.00...67.00) 1st speed 1/min: 500 Supply-pump bar: 2.40...3.00 pressure 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 900 electromagnet Volt: 12 Del. quantity cm3/: 58.00...66.00 1000s.: (56.00...68.00) Supply-pump bar: 4.10...4.70 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 3rd speed 1/min: 1100 Mech. Abstellung: Supply-pump pressure bar: 4.90...5.50 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Shutoff electromagnet volt: 12 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 500 1st speed Shutoff 1st speed 1/min: 500 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Overflow : 41.70...86.10 1000s.: (0.00...3.00) cm3/10s: (26.70...101.10) quantity Shutoff 1/min: 1100 2nd speed electromagnet volt: -Shutoff electromagnet Volt: 12 Idle delivery: : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity 1st speed 1/min: 500 Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 12 Del. quantity cm3/: 6.00...12.00 1000s.: (4.00...14.00) cm3/: 5.5 1000s.: (7.0) 1/min: 570 2nd speed 1/min: 1260 Dispersion Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 2nd speed Shutoff 1000s.: (0.00...3.00) 1/min: 1190 electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) 3rd speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 Del. quantity cm3/: 31.50...38.50 1000s.: (29.00...41.00) 1000s.: (70.00...130.00) 1/min: 1100 9th speed

?nd speed 1/min: 240

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 70.00...120.00

1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

Κ mm: -

KF mm: 5.0...5.4 mm: 1.2...1.4 MS

SVS max. mm: 2.5

mm: 34.8...38.8 Ya Yb mm: 40.2...45.6

Remarks:

: C.D.C. # 3 917 528

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R374-4

Type number : 0 460 424 089

Customer—specific information

Customer

Engine : 4 BTA 3.9

KW: 81 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Openina

Pressure bar: 250...253

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.55

mm: +-0.04(0.06)

Outlet |

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

mm: 3.80...4.20 Setting value

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 85.5...86.5

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1145 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...105.00

1000s.: 65.0 mind

Shutoff Overflow : 111.10...194.40 electromagnet Volt: 24 cm3/10s: (96.10...209.40) quantity Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 6.6 1st speed 1/min: 1100 Charge press hPa: 1000 mm: 5.20...6.00 TD travel Shutoff mm: (4.90...6.30) : 24 Shutoff 2nd speed 1/min: 750 Charge press hPa: 1000 TD travel mm: 3.80...4.20 Charge press. hPa: 1000 mm: (3.30...4.70) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet Volt: 24 3rd speed 1/min: 500 Charge press. hPa: 1000 Shutoff Charge press hPa: 1000 mm: 2.10...2.90 TD travel mm: (1.80...3.20) electromagnet Volt: 24
Del. quantity cm3/: 15.00...55.00
1000s.: -Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: 1/min: 1145 4th speed Charge press. hPa: 1000 1st speed 1/min: 1100 Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 65.00...71.00 1000s.: (62.00...74.00) 5th speed 1/min: 1100 Supply-pump bar: 6.70...7.30 pressure Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 1/min: 750 2nd speed Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 76.00...79.00 Supply-pump bar: 5.10...5.70 pressure 1000s.: (74.50...80.50) Shutoff 1/min: 1000 6th speed electromagnet Volt: 24 Charge press. hPa: 1000 1/min: 500 3rd speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 78.50...81.50
1000S.: (76.50...83.50)
7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 4.00...4.60 Shutoff electromagnet Volt: 24 Overlow quantity at overflow valve: electromagnet Volt: 24 Del. quantity cm3/: 85.50...86.50 1/min: 500 1000s.: (83.00...89.00) 1st speed Charge press. hPa: -Shutoff 1/min: 500 8th speed Charge press. hPa: electromagnet Volt: 24 Shutoff : 97.20...138.80 Overflow electromagnet Volt: 24 Del. quantity cm3/: 63.50...64.50 1000s.: (60.00...68.00) quantity cm3/10s: (82.20...153.80) 2nd speed 1/min: 1100 Charge press. hPa: 1000 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung:

1/min: 1100 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 375 1st speed Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) cm3/: 3.5 Dispersion 1000s.: (5.0) 1/min: 455 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: -Automatic starting fuel delivery: 1/min: 240 1st speed Soutoff electromagnet Volt: 24 Del. quantity cm3/: 35.00...65.00 1000s.: (35.00...65.00) 2nd speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...125.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions:

K mm: KF mm: 5.0...5.4
MS mm: 1.0...1.2
LDA stroke Ya mm: 34.8...38.8
Yb mm: 40.8...46.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold—pressure compensator pressure change.

* Correction at adjusting nut

Designation

Note inst. in remarks column

Test scheet

: 28.04.94 Edition replaces : 16.06.92 Calibrating oil : ISO-4113

Injection pump : VE4/12F150GR492 Type number : 0 460 424 091

Customer-specific information

Customer

Engine : D 229 EC 4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

Pressure bar: 207...210

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke (from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

Setting value mm: 5.10...5.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 6.70...7.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1100 Speed

Del. quantity cm3/

1000s.: 59.70...60.70

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000s.: (4.5)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1600

Del. quantity cm3/ 1000s.: 42.00...48.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 90.00...130.00 mind 1000s.: 90.0

mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1500

mm: 6.20...7.00 TD travel mm: (5.90...7.30)

Shutoff : 12

1/min: 1100 2nd speed

mm: 5.10...5.50 TD travel mm: (4.60...6.00)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 700

mm: 0.80...1.60 TD travel

mm: (0.50...1.90)

B07

Shutott	- Del. quantity cm3/: 59.7060.70
electromagnet Volt: 12	- 1000\$.: (57.2063.20)
†	- 7th speed 1/min: 900
Supply-pump pressure characteristic:	- Shutoff
†	- electromagnet Volt: 12
1st speed	- Del. quantity cm3/: 61.5065.20
Supply-pump +	- 1000s.: (60.0067.00)
pressure bar: 8.208.80	- 8th speed 1/min: 500
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
2nd speed 1/min: 1100	- Del. quantity cm3/: 54.0060.00
Supply-pump +	- 1000s.: (52.0062.00)
pressure bar: 6.707.30	-
Shutoff	- Mech. shutoff:
electromagnet Volt: 12	•
3rd speed 1/min: 700	- Electr. shutoff:
Supply-pump +	•
pressure bar: 4.905.50	- 1st speed 1/min: 375
Shutoff	- Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	- 1000s.: -
72	- Shutoff
Overlow quantity at overflow valve:	- electromagnet volt: -
To ton quantity of at over 1 con vacye.	- etectromagnet vott.
1st speed 1/min: 500	- Idle delivery:
Shutoff	- Tate detivery.
electromagnet Volt: 12	- 1st speed 1/min: 375
Overflow : 97.20138.80	- Shutoff
quantity cm3/10s: (82.20153.80)	
2nd speed 1/min: 1500	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 13.0017.00
	- 1000s.: (11.0019.00)
electromagnet Volt: 12	Dispersion cm3/: 3.5
Overflow : 111.10194.40 +	- 1000s.: (5.0)
quantity cm3/10s: (96.10209.40)	- 2nd speed 1/min: 300
<u> </u>	- Shutoff
Delivery-quant. and breakaway char.:	- electromagnet Volt: 12
†	Del. quantity cm3/: 28.5036.50
†	- 1000s.: (26.5038.50)
2nd speed 1/min: 1850	- 3rd speed 1/min: 450
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
Del. quantity_cm3/: 0.003.00	- Del. quantity cm3/: 0.006.00
1000s.: -	- 1000s.: (0.006.00)
3rd speed 1/min: 1700	•
Shutoff	 Automatic starting fuel delivery:
electromagnet Volt: 12	•
Del. quantity cm3/: 14.0028.00	- 1st speed 1/min: 250
1000s.: (11.0031.00)	- Shutoff
4th speed 1/min: 1600 +	electromagnet Volt: 12
Shutoff	
	· Det. quantity cms/: 20.00ou.00
electromagnet Volt: 12	- Del. quantity cm3/: 20.0060.00 - 1000s.: (20.0060.00)
electromagnet Volt: 12 Lectromagnet Volt: 42.0048.00 Lectromagnet Volt: 42.0048.00 Lectromagnet Volt: 42.0048.00	1000S.: (20.0060.00)
Del. quantity cm3/: 42.0048.00	1000s.: (20.0060.00)
Del. quantity cm3/: 42.0048.00 + 1000s.: (39.0051.00)	1000S.: (20.0060.00) 4th speed 1/min: 100
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 1	1000S.: (20.0060.00) 4th speed 1/min: 100 Shutoff
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff electromagnet Volt: 12	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00130.00
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.0057.00	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.0057.00 1000s.: (51.5058.50)	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00130.00 1000s.: (90.00130.00)
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.0057.00 1000s.: (51.5058.50) 6th speed 1/min: 1100	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00130.00
Del. quantity cm3/: 42.0048.00 1000s.: (39.0051.00) 5th speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.0057.00 1000s.: (51.5058.50)	1000s.: (20.0060.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00130.00 1000s.: (90.00130.00)

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.2...5.6 MS1 mm: 1.2...1.4 Ya mm: 42.0...44.0 Yb mm: 36.8...45.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor—head end

Note inst. in remarks column

Test scheet

Edition

: 29.04.94

replaces

Calibrating oil : ISO-4113

Injection pump

: VE4/12F1350R505

Type number

: 0 460 424 094

Customer Part-No. :

Customer-specific information Customer

: IVECO-FIAT

"DI"

Engine

: 8040.45.4300

Power

KW: 75

Speed

1/min: 1350

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 450

Start of delivery

Prestroke

mn: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed

1/min: 1100

Charge press. hPa: 1000

Setting value mm: 3.90...4.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed

1/min: 1100 Charge press hPa: 1000

Setting value bar: 7.20...7.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed

Charge press. hFa: 1000 Del. quantity cm3/ 1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 24

cm3/: 3.5 Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 48.00...49.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1550 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 19.00...25.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection—pump test specifications

Test specifications in parentheses

B10

	† 1nd speed 1/min: 500
Timing-device characteristic:	Charge-air pressure-setting point hPa: 350
3rd speed 1/min: 1100	LDA-stroke mm: 5.3
Charge press hPa: 1000	+ Shutoff
TD travel mm: 3.904.10	electromagnet Volt: 24
mm: (3.304.70)	Del. quantity cm3/: 66.5067.50
Shutoff	10008:: (63.0071.00)
electromagnet Volt: 24	2nd speed 1/min: 1600
4th speed 1/min: 900	
Charge press hPa: 1000	+ Charge press. hPa: 1000 + Shutoff
TD travel mm: 1.402.00	
mm: (1.002.40)	+ electromagnet Volt: 24
Shutoff	† Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	† 1000s.: (0.003.00)
7. Rotacao 1/min: 1000	+ 5th speed 1/min: 1550
	+ Charge press. h?a: 1000
Charge press. hPa: 1000	+ Shutoff
TD travel mm: 2.703.30 mm: (2.303.70)	electromagnet Volt: 24
Shutoff	bel. quantity cm3/: 19.0025.00
	† 1000s.: (16.0028.00)
electromagnet Volt: 24	+ 9th speed 1/min: 1350
Complete warm management shows at a state of	+ Charge press. hPa: 1000
Supply-pump pressure characteristic:	+ Shutoff
1st speed 1/min 700	+ electromagnet Volt: 24
1st speed 1/min: 700	+ Del. quantity cm3/: 66.5070.50
Charge press. hPa: 1000	10008.: (65.0072.00)
Supply-pump	10th speed 1/min: 1000
pressure bar: 4.705.30	† Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
2nd speed 1/min: 1100	+ Del. quantity cm3/: 69.0073.00
Charge press. hPa: 1000	10003.: (67.5074.50)
Supply-pump	† 12th speed 1/min: 700
pressure bar: 7.207.80 Shutoff	+ Charge press. hPa: 1000
	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
3rd speed 1/min: 1350	Del. quyntity cm3/: 73.5074.50
Charge press. hPa: 1000	† 1000s.: (70.5077.50)
Supply-pump pressure bar: 8.609.20	18th speed 1/min: 500
pressure bar: 8.609.20 Shutoff	+ Charge press. hPa: -
electromagnet Volt: 24	+ Shutoff
etectrollagnet vott. 24	+ electromagnet Volt: 24
Overlow quantity at overflow valve:	+ Del. quantity cm3/: 48.0049.00 + 1000s.: (45.0052.00)
over tow quarterty at over row valve.	I 10003 (45.0052.00)
1st speed 1/min: 500	T Mech. shutoff:
Shutoff	Hech. Abstellung:
electromagnet Volt: 24	T hern. Abstectorig.
Overflow : 75.00119.50	1st speed 1/min: 1350
quantity cm3/10s: (60.00134.50)	Del. quantity cm3/: 0.003.00
2nd speed 1/min: 1350	10008:: (0.003.00)
Charge press. hPa: 1000	+ Shutoff
Shutoff	electromagnet volt: 24
electromagnet Volt: 24	- Court Shagner Vote. ET
Overflow : 97.30180.70	+ Electr. shutoff:
quantity cm3/10s: (82.30195.70)	-
	+ 1st speed 1/min: 350
Delivery-quant. and breakaway char.:	+ Del. quantity cm3/: 0.003.00
, , , , , , , , , , , , , , , , , , , ,	+ 1000s.: (0.003.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 6.00...10.00

10**00**s.: (3.00...13.00)

cm3/: 3.5Dispersion 1000s.: (5.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 24

Del. quaritity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 25.00...55.00
1000S.: (25.00...55.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0

Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.4...3.8 K

KF mm: KOT

MS1 mm: 1.1...1.4

LDA stroke mm: 5.3

mm: 36.9...40.9 mm: 37.8...43.0 Ya

Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure

change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet

Edition : 29.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R511 : 0 460 424 095 Type number

Customer Part-No. :

Customer-specific information

Customer "DT" : IVECO-FIAT

Engine : 8040.45.4383

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina .

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 450

Start of delivery Prestroke

mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Charge press. hPa: 1000

Setting value mm: 2.90...3.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 75.50...76.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5

1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 55.50...56.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 4.00...8.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1450 Charge press hPa: 1000

Del. quantity cm3/

1000\$.: 30.00...34.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

TD travel mm:	1350 1000 4.605.20 (4.205.60)	+ + + + + + + + + + + + + + + + + + + +	1nd speed 1/min: Charge-air pressure point hPa: LDA-stroke mm:	-setting 450
mm:		+++++++++++++++++++++++++++++++++++++++		55.5056.50 (52.5059.50)
Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa:		‡	2nd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	1000
TD travel mm:	2.903.10 (2.303.70)	+++++++++++++++++++++++++++++++++++++++	Del. quantity cm3/:	0.003.00 (0.003.00)
	800 1000	+ + + + + + + + + + + + + + + + + + + +	Charge press. hPa: Shutoff electromagnet Volt:	1000
	(0.001.10)	+++++++++++++++++++++++++++++++++++++++	9th speed 1/min:	(26.0038.00) 1350
Supply-pump pressure 1st speed 1/min:		†	Charge press. hPa: Shutoff electromagnet Volt:	
Charge press. hPa: Supply-pump	1000 4.304.90	+	Del. quantity cm3/: 1000s.:	66.5070.50 (65.0072.00)
Shutoff electromagnet Volt:	24	Ī	10th speed 1/min: Charge press. hPa: Shutoff	
2nd speed 1/min: Charge press. hPa: Supply-pump	1000	†	electromagnet Volt: Del. quantity cm3/: 1000S.:	71.0075.00 (69.5076.50)
pressure bar: Shutoff electromagnet Volt:	6.607.20	†	12th speed 1/min: Charge press. hPa: Shutoff	
3rd speed 1/min: Charge press. hPa: Supply-pump	1350	+	<pre>electromagnet Volt: Del. quyntity cm3/:</pre>	
pressure bar: Shutoff electromagnet Volt:	8.609.20 24	+	18th speed 1/min: Charge press. hPa: Shutoff	500
Overlow quantity at	overflow valve:	+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: Del. quantity cm3/: 1000S.:	
1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	-	† † †	Mech. shutoff: Mech. Abstellung:	
Overflow: cm3/10s: 2nd speed 1/min:	75.00119.50 (60.00134.50) 1350	‡		1350 0.003.00 (0.003.00)
Charge press. hPa: Shutoff electromagnet Volt:	24	‡	Shutoff electromagnet volt:	24
	97.30180.70 (82.30195.70)	‡	Electr. shutoff: 1st speed 1/min:	375
Delivery-quant. and	breakaway char.:	++++	Del. quantity cm3/:	

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.00...8.00

1000s.: (1.00...11.90)

cm3/: 3.5 1000s.: (5.0) Dispersion

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00

1000s.: (40.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.5...3.6 K

KF mm: KOT

MS1 mm: 1.1...1.4

LDA stroke mm: 4.5

mm: 36.9...40.9 Ya mm: 42.4...47.6 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure

change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet

Edition : 29.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R516 Type number : 0 460 424 096

Customer Part-No. :

Customer-specific information

Customer : MAXON

Engine : S4T - PLUS

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 101 assembly

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450

x Length

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1200

Setting value mm: 1.90...2.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100 Charge press. hPa: 1200 Del. quantity cm3/ 1000S.: 97.00...98.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 67.00...71.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1200 Del. quantity cm3/

1000s.: 75.50...81.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 105.00...155.00

1000s.: 105 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	Charge-air pressure-setting
2-11 4/ 1/00	point hPa: 600
2nd speed 1/min: 1400	LDA-stroke mm: -
Charge press hPa: 1200	- Shutoff
TD travel mm: 2.102.90	electromagnet Volt: 12
mm: (1.803.20)	Del. quantity cm3/: 67.0071.00
3rd speed 1/min: 1100 -	1000s.: (64.5073.50)
Charge press hPa: 1200	- 2nd speed 1/min: 1800
TD travel mm: 1.702.10	Charge press. hPa: 1200
mm: (1.202.60)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	
	Pel. quantity cm3/: 0.003.00
4th speed 1/min: 900	1000s.: (0.003.00)
Charge press hPa: 1200	- 5th speed 1/min: 1600
TD travel mm: 0.501.30	Charge press. hPa: 1200
mm: (0.201.60)	- Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 25.0041.00
	1000s.: (21.0045.00)
Supply-pump pressure characteristic:	- 9th speed 1/min: 1500
Tappey paris produce and decer (30) g.	Charge press. hPa: 1200
1st speed 1/min: 900	Shutoff
Charge press. hPa: 1200	
	electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 75.5081.50
pressure bar: 5.406.00	1000s.: (72.5084.50)
Shutoff	- 19th speed 1/min: 1400
electromagnet Volt: 12	- Charge press. hPa: 1200
2nd speed 1/min: 1100	- Shutoff
Charge press. hPa: 1200	- electromagnet Volt: 12
Supply-pump -	- Del. quantity cm3/: 93.5097.50
pressure bar: 6.206.80	10005.: (92.0099.00)
Shutoff	- 12th speed 1/min: 1100
electromagnet Volt: 12	- Charge press. hPa: 1200
3rd speed 1/min: 1400	Shutoff
	electromagnet Volt: 12
Supply-pump -	- Del. quyntity cm3/: 97.0098.00
pressure bar: 7.408.00	1000\$.: (94.50100.50)
Shutoff	13th speed 1/min: 700
electromagnet Volt: 12	- Charge press. hPa: 1200
4	- Shutoff
Overlow quantity at overflow valve:	- electromagnet Volt: 12
	- Del. quantity cm3/: 104.0110.0
1st speed 1/min: 500	- 1000s.: (102.0112.0)
Charge press. hPa: -	- 14th speed 1/min: 500
Shutoff	- Charge press. hPa: -
electromagnet Volt: 12	- Shutoff
Overflow : 97.20138.80	
quantity cm3/10s: (82.20153.80)	electromagnet Volt: 12
	Del. quantity cm3/: 67.0071.00
2nd speed 1/min: 1400	1000s.: (64.5073.50)
Charge press. hPa: 1200	-
Shutoff	- Mech. shutoff:
electromagnet Volt: 12	-
Overflow: 111.10194.40	- Electr. shutoff:
quantity cm3/10s: (96.10219.40)	-
	- 1st speed
Delivery-quant. and breakaway char.:	- Charge press. hPa: -
TOTAL AND TOTAL CONTRACT CHAIL	
1	- Del. quantity cm3/: 0.003.00
1nd speed 1/min. 750	1000s.: (0.003.00)
1nd speed 1/min: 750	- Shutoff
	- electromagnet volt: -

Idle delivery:

1/min: 400 1st speed

Shutoff

1000s.: (5.0)

1/min: 375 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 16.0...24.0 1000s.: (14.0...26.0) 3rd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00

1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 30.00...80.00

1000s.: (30.00...80.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 105.00...155.00

1000s.: (105.00...155.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 KF mm: KOT mm: 1.0...1.2 mm: 35.0...37.0 MS1 Ya mm: 44.8...53.2 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

: CUM 5,8 W38 Test scheet Edition : 28.04.94 : 24.04.90 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R320-2 Type number : 0 460 426 139

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BT-590A

TEST BENCH REQUIREMENTS

Calibrating-oil return temb.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.40

mm: +-0.04(0.06)

Outlet ; D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

Charge press. hPa: 1200 Setting value mm: 1.30...1.70

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1200

Setting value bar: 6.80...7.40

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100 Speed Charge press. hPa: 1200

Del. quantity cm3/ 1000s.: 73.00...74.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000S.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 51.00...52.00

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Charge press hPa: -

Del. quantity cm3/

1000s.: 5.50...9.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1340 Speed Charge press hPa: 1200

Del. quantity cm3/

1000s.: 52.50...58.50

KSB/AFB		+	Shutoff	
valve Volt:	12	1	electromagnet Volt:	12
Shutoff		+	2nd speed 1/min:	1100
<pre>electromagnet Volt:</pre>	12	+	Charge press. hPa:	1200
_		+	Supply-pump	
Start:		+	pressure bar:	6.807.40
		+	KSB/AFB	
Speed 1/min:		+	valve Volt:	12
Del. quantity cm3/:	70.00130.00	+	Shutoff	
mind 1000s.:	70.00	+	electromagnet Volt:	12
KSB/AFB		+	3rd speed 1/min:	500
Valve Volt:	12	+		1200
Shutoff		+	Supply-pump	
electromagnet Volt:	12	+	pressure bar:	4.104.70
-		+	KSB/AFB	
Inspection-pump tes	t specifications	+	valve Volt:	12
Test specifications	in parentheses	4	Shutoff	·
•	,	1	electromagnet Volt:	12
Timing device chara	cteristic:	1		
•		1	Overlow quantity at	overflow valve:
1st speed 1/min:	450*	1	are ten quality by ev	
	1200	+	1st speed 1/min:	500
	3.004.00	1	Charge press. hPa:	
mm:	_	1	KSB/AFB	
KSB/AFB		1	valve Volt:	12
valve Volt:	••	1	Shutoff	
electromagnet Volt:		1	electromagnet Volt:	12
2nd speed 1/min:		1	Overflow :	41.7083.40
	1200	1		(26.7098.40)
TD travel mm:	2.203.00	1	2nd speed 1/min:	
	(1.903.30)	1	Charge press. hPa:	
KSB/AFB		1	KSB/AFB	1200
valve Volt:	12	1	valve Volt:	12
Shutoff	· -	1	Shutoff	! to
electromagnet Volt:	12	1	electromagnet Volt:	12
3rd speed 1/min:		1		55.60139.00
	1200	1	quantity cm3/10s:	
TD travel mm:	1.301.70	1	quarter 27 000, 103.	(40.00155.00)
	(0.802.20)	1	Delivery-quant. and	hreakauay char ·
KSB/AFB	(0.00**********************************	1	beenvery quarter and	Di Cakanay Chair.
valve Volt:	12	1		
Shutoff		1	1nd speed 1/min:	700*
electromagnet Volt:	12	1	Charge-air pressure	
4th speed 1/min:		1	point hPa:	
	1200	1	•	6.8
	0.501.30	1	KSB/AFB	0.0
	(0.201.60)	1	valve Volt:	12
KSB/AFB	10120771,10,07	1	Shutoff	16
valve Volt:	12	1	electromagnet Volt:	12
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	12	1		(64.5072.50)
		1	2nd speed 1/min:	
Supply-pump pressur	e characteristic:	1	Charge press. hPa:	
		1	KSB/AFB	1200
1st speed 1/min:	1250	1	valve Volt:	12
	1200	1	Shutoff	16
Supply—pump		1	electromagnet Volt:	12
	7.508.10	1	Del. quantity cm3/:	
KSB/AFB		1	1000s.:	
valve Volt:	12	1	3rd speed 1/min:	
	· -	ŧ	u specu 1/11/11.	1-100

KSB/AFB	1200	Electr. shutoff:
valve Volt: Shutoff	<u> </u>	1st speed 1/min: 350 Charge press. hPa: -
electromagnet Volt:	12 +	Del. quantity cm3/: 0.003.00
Del. quantity cm3/:	15.0055.00	1000s.: (0.003.00)
1000s.:		Shutoff
4th speed 1/min:	1340	electromagnet volt: -
Charge press. hPa:		KSB/AFB
KSB/AFB	+	valve Volt: 12
valve Volt:	12	10111
Shutoff	1	Idle delivery:
electromagnet Volt:	12	2010 000170171
Del. quantity cm3/:	52 50 58 50	1st speed 1/min: 350
12000	(49.5061.50)	KSB/AFB
5th speed 1/min:		
		valve Volt: 12
Charge press. hPa:	1200	Shutoff
KSB/AFB	†	electromagnet Volt: 12
valve Volt:	12 +	Del. quantity cm3/: 5.509.50
Shutoff	+	1000s.: (2.5012.50)
electromagnet Volt:	12 +	Dispersion cm3/: 5.5
Del. quantity cm3/:	70.5073.50	1000s.: (7.0)
1000s.:	(69.0075.00)	2nd speed 1/min: 450
6th speed 1/min:		KSB/AFB
Charge press. hPa:	1200	valve Volt: 12
KSB/AFB	7	• • • • • • • • • • • • • • • • • • • •
	12	Shutoff
valve Volt:	12 +	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 0.004.00
electromagnet Volt:		1000s.: (0.004.00)
Del. quantity cm3/:		
1900s.:	(70.5076.50)	Automatic starting fuel delivery:
7th speed 1/min:	750 +	.
Charge press. hPa:	1200	1st speed 1/min: 250
KSB/ĀFB	<u> </u>	KSB/AFB
valve Volt:	12 🗼	
valve Volt:	12	valve Volt: 12
Shutoff	+	valve Volt: 12 Shutoff
Shutoff electromagnet Volt:	12	valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	12 72.0077.00 (70.0079.00)	valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min:	12 72.0077.00 (70.0079.00)	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: -
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa:	12 72.0077.00 (70.0079.00)	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB	12 72.0077.00 (70.0079.00) 500	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	12 72.0077.00 (70.0079.00) 500	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff	12 72.0077.00 (70.0079.00) 500 -	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt:	12 72.0077.00 (70.0079.00) 500 - 12	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 12 51.0052.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: — 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 12 51.0052.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	12 72.0077.00 (70.0079.00) 500 - 12 12 12 51.0052.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 130 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff:	12 72.0077.00 (70.0079.00) 500 - 12 12 12 51.0052.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	12 72.0077.00 (70.0079.00) 500 - 12 12 12 51.0052.00	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50)	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung: 1st speed 1/min:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50)	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50)	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: — 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) 1250 1200 0.003.00	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: - 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) 1250 1200 0.003.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 130 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000s.: -
Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) - 1250 1200 0.003.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: — 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) - 1250 1200 0.003.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: — 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000S.: — Shutoff electromagnet:
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 8th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: KSB/AFB	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) - 1250 1200 0.003.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 130 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000s.: -
Shutoff electromagnet Volt: Del. quantity cm3/:	12 72.0077.00 (70.0079.00) 500 - 12 12 51.0052.00 (47.5055.50) - 1250 1200 0.003.00	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000S.: — 2nd speed 1/min: 130 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000S.: — Shutoff electromagnet:

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 KF mm: KOT MS mm: 0,8...1,2 SVS max. mm: 1.4 LDA stroke mm: 6,8 Ya mm: 34.8...38.8

Remarks:

Yb

: C.D.C. # 3 917 943

mm: 41.6...47.2

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : CUM Edition : 28.04.94 replaces : 07.07.92

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8 Type number : 0 460 426 200

Customer Part-No. :

Customer-specific information

Customer : CDC

: 68T- 5.9 IND. Engine

KW: 64 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated plate

diameter ımm: 0.5

Test inj. tubing : 1 680 750 017

Cutside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.50

mm: $\leftarrow 0.04(0.06)$

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 49.50...50.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1150

Del. quantity cm3/

1000s.: 33.50...39.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 50.00...90.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 6.10...6.90

mm: (5.80...7.20)

Shutoff -	Del. quantity cm3/: 33.5039.50
electromagnet Volt: 24	1000s.: (30.5042.50)
3rd speed 1/min: 750 -	12th speed 1/min: 1100
TD travel mm: 3.303.70	Shutoff
mm: (2.804.20)	electromagnet Volt: 24
Shutoff - electromagnet Volt: 24	Del. quyntity cm3/: 49.5050.50 1000s.: (47.0053.00)
4th speed 1/min: 500	10003.: (47.0033.00) 1 15th speed
TD travel mm: 1.302.10	Shutoff
mm: (1.002.40)	electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 47.5050.50
electromagnet Volt: 24	1000s.: (45.5052.50)
	17th speed 1/min: 600
Supply-pump pressure characteristic:	Shutoff
4	electromagnet volt: 24
1st speed 1/min: 500	Del. quantity cm3/: 43.5049.50 1000H.: (42.0051.00)
Supply-pump - 2/0 700	1000H.: (42.0051.00)
pressure bar: 2.403.00 - Shutoff	20th speed 1/min: 500
electromagnet Volt: 24	Shutoff electromagnet Volt: 24
2nd speed 1/min: 750	Del. quantity cm3/: 32.5040.50
Supply-pump -	10005.: (30.5042.50)
pressure bar: 3.504.10	(30.3042.30.
Shutoff	Mech. shutoff:
electromagnet Volt: 24	Mech. Abstellung:
3rd speed 1/min: 1100 -	+
Supply-pump -	1st speed 1/min: 1100
pressure bar: 5.105.70	Del. quantity cm3/: 0.003.00
Shutoff -	1000s.: (0.003.00)
electromagnet Volt: 24	- Shutoff
Overlow quantity at overflow valve:	electromagnet volt: 24
over tow quarterly at over row varve.	Electr. shutoff:
1st speed 1/min: 600	Lecti. Shatorr.
Shutoff	1st speed 1/min: 375
electromagnet Volt: 24	- Del. quantity cm3/: 0.003.00
Overflow : 41.7083.40	1000s.: (0.003.00)
quantity cm3/10s: (41.7083.40)	-
2nd speed 1/min: 1100 -	Idle delivery:
Shutoff -	1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
electromagnet Volt: 24 - Overflow : 55.60139.00 -	- 1st speed 1/min: 375 - Shutoff
quantity cm3/10s: (55.60139.00)	electromagnet Volt: 24
444.1010	Del. quantity cm3/: 17.0023.00
Delivery-quant. and breakaway char.:	10005.: (15.0025.00)
•	Dispersion cm3/: 5.5
<u> </u>	- 1000s.: (7.0)
2nd speed 1/min: 1200	- 2nd speed 1/min: 480
Shutoff -	- Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
Del. quantity cm3/: 0.003.00 - 1000s.: (0.003.00) -	Del. quantity cm3/: 0.003.00
3rd speed 1/min: 1160 -	1000s.: (0.003.00)
Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 24	Automatic starting fact detryery.
Del. quantity cm3/: 15.0045.00	-
1000s.: (15.0045.00)	2nd speed 1/min: 375
5th speed 1/min: 1150	Shutoff
Shutoff	electromagnet Volt: 24
electromagnet Volt: 24	L .

Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 50.00...90.00
1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

າກ: 5.0...5.4 KF MS mm: 1.0...1.4 Ya mm: 34.8...38.8 Yb mm: 42.4...47.6

Remarks:

: C.D.C. # 3 922 411

Note inst. in remarks column

Test scheet

Edition

: 22.04.94

replaces

Calibrating oil

: ISO-4113

Injection pump

: VE6/12F1250R498-2

Type number

: 0 460 426 213

Customer Part-No. :

Customer-specific information Customer

Engine

: 6 BTA 5.9B

Power

KW: 108

Speed

1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil

return temp.

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 109

Opening

Pressure

bar: 207.00...210.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke

mm: --

(from BDC): -

Start of delivery block

Piston stroke mm: 1.2

mm: +-0.04(0.06)

Outlet

Injection pump setting values

B26

Test specifications in parentheses

Timing-device travel

Speed

1/min: 1000

Charge press. hPa: 1000

Setting value mm: 1.90...2.30 AFB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed

1/min: 1000

Charge press hPa: 1000

Setting value bar: 6.30...6.90

KSB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed

1/min: 850

Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 80.00...81.00

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Dispersion cm3/: 5.0

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed

1/min: 500

Del. quantity cm3/

1000s.: 67.00...68.00

11

KSB/AFB

Volt: -

valve Shutoff

electromagnet Volt: 24

Dispersion cm3/: 5.0

1000s.: (6.0)

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 11.00...15.00

KSB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Supply-pump 1/min: 1350 bar: 5.70...6.30 Speed pressure Charge press hPa: 1000 KSB/AFB Del. quantity cm3/ valve Volt: -1000s.: 55.00...61.00 Shutoff KSB/AFB electromagnet Volt: 24 Volt: valve 1/min: 1000 2nd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Supply-pump bar: 6.30...6.90 pressure Start: KSB/AFB valve Volt: -1/min: 100 Speed Shutoff Del. quantity cm3/: 65.00...95.00 electromagnet Volt: 24 3rd speed 1/min: 1250 1000s.: 65.00 mind KSB/AFB Charge press. hPa: 1000 Valve Volt: -Supply-pump Shutoff bar: 7.20...7.80 pressure electromagnet Volt: 24 KSB/AFB valve Volt: -Inspection-pump test specifications Shutoff Test specifications in parentheses electromagnet Volt: 24 4th speed 1/min: 500 Charge press. hPa: 1000 Timing-device characteristic: Supply pump 1/min: 1250 hPa: 1000 mm: 2.20...3.00 bar: 3.90...4.50 2nd speed pressure Charge press KSB/AFB TD travel valve Volt: mm: (1.90...3.30) Shutoff KSB/AFB electromagnet Volt: 24 Volt: valve Shutoff Overlow quantity at overflow valve: electromagnet Volt: 24 3rd speed 1/min: 1000 1st speed 1/min: 500 Charge press hPa: 1000 TO travel mm: 1.90...2.30 mm: (1.40...2.80) Charge press. hPa: -Shutoff electromagnet Volt: 24 Shutoff : 41.70...86.10 Overflow electromagnet Volt: 24 cm3/10s: (26.70...101.10) quantity 1/min: 850 7. Rotacao 2nd speed 1/min: 1250 Charge press. hPa: 1000 Charge press. hPa: 1000 TD travel mm: 0.60...1.40 KSB/AFB mm: (0.30...1.70) valve Volt: -KSB/AFB Shutoff valve Volt: electromagnet Volt: 24 Shutoff : 55.60...139.00 Overflow electromagnet Volt: 24 8th speed 1/min: 450 cm3/10s: (40.60...154.00) quantity 8th speed Charge press. hPa: -Delivery-quant. and breakaway char.: mm: 2.00...3.00 TD travel mm: (1.80...3.20) KSB/AFB 1nd speed 1/min: 600 Volt: 24 valve Charge-air pressure-setting hPa: 450 Shutoff point electromagnet Volt: 24 mm: 6.4 LDA-stroke KSB/AFB Supply-pump pressure characteristic: valve Volt: -Shutoff 1st speed 1/min: 850 electromagnet Volt: 24

Charge press. hPa: 1000

Del. quantity cm3/:	73.0074.00	+	1st speed 1/min: 1250
Tool anged 1/min.	(69.5077.50)	†	Charge press. hPa: 1000
2nd speed 1/min:		†	Del. quantity cm3/: 0.003.00
Charge press. hPa:	1000	+	1000s.: (0.003.00)
KSB/AFB		+	Shutoff
valve Volt:	-	+	electromagnet volt: 24
Shutoff		1	KSB/AFB
electromagnet Volt:	24	1	valve Volt: -
Del. quantity cm3/:		1	vacve vocc.
	(0.003.00)	I	Electr. shutoff:
3rd speed 1/min:		T	Etecti. Silutori:
		+	4.1 4.1 750
Charge press. hPa:	1000	+	1st speed 1/min: 350
KSB/AFB		+	Charge press. hPa: -
valve Volt:	-	+	Del. quantity cm3/: 0.003.00
Shutoff		+	1000s.: (0.003.00)
electromagnet Volt:	24	+	Shutoff
Del. quantity cm3/:	10.0040.00	+	electromagnet volt: -
10005	(10.0040.00)	1	KSB/AFB
5th speed 1/min:	1350	\perp	valve Volt: -
Charge press. hPa:		T	valve vott
	1000	T	* (1
KSB/AFB		+	Idle delivery:
valve Volt:	-	+	
Shutoff		+	1st speed 1/min: 350
electromagnet Volt:		+	KSB/AFB
Del. quantity cm3/:	55.0061.00	+	valve Volt: -
	(52.0064.00)	1	Shutoff
9th speed 1/min:		1	electromagnet Volt: 24
Charge press. hPa:		1	Del. quantity cm3/: 11.0015.00
KSB/AFB	1000	1	
valve Volt:		T	1000s.: (8.0018.00) Dispersion cm3/: 5.5
Shutoff	_	T	
	21	†	1000s.: (7.0)
electromagnet Volt:		+	2nd speed 1/min: 410
Del. quantity cm3/:		+	KSB/AFB
	(77.5083.50)	+	valve Volt: -
10th speed 1/min:	1100	+	Shutoff
Charge press. hPa:	1000	+	electromagnet Volt: 24
KSB/AFB		1	Del. quantity cm3/: 0.003.00
valve Volt:	_	1	1000s.: (0.003.00)
Shutoff		T	10003 (0.003.00)
	2/	T	Alabamatia mtantina final daliman
electromagnet Volt:		†	Automatic starting fuel delivery:
Del. quantity cm3/:		†	
	(79.5086.50)	+	1st speed 1/min: 130
12th speed 1/min:		+	Charge press. hPa: -
Charge press. hPa:	1000	+	KSB/AFB
KSB/AFB		+	valve Volt: -
valve Volt:	_	+	Shutoff
Shutoff		1	electromagnet Volt: 24
electromagnet Volt:	24	1	Del. quantity cm3/: 75.00115.00
Del. quyntity cm3/:		1	
1000c	(70 En 0/ En)	T	1000s.: (75.00115.00)
19th spend 4/	(78.5084.50)	T	2nd amand 47.1. 200
18th speed 1/min:		†	2nd speed 1/min: 200
Charge press. hPa:	-	†	Charge press. hPa: -
Shutoff		+	KSB/AFB
electromagnet Volt:		+	valve Volt: -
Del. quantity cm3/:	67.0068.00	+	Shutoff
	(63.5071.50)	+	electromagnet Volt: 24
		1	Del. quantity cm3/: 60.0090.00
Mech. shutoff:		1	10005.: (60.0090.00)
Mech. Abstellung:		1	100001. (00.001,170.00)
		L	1th annual 1/min 100
		7	4th speed 1/min: 100

Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: KOT MS1 mm: 1.1...1.4

mm: 3.7 SVS max. LDA stroke

mm: 6.4 mm: 34.8...38.8 Ya mm: 43.3...48.9 Yb

Remarks:

: # CDC 3 281 849

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0
ccm/1000 \$.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : CUM **Fdition** : 22.04.94 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1250R498-2 Type number : 0 460 426 213 Customer Part-No.: 3 282 594 Customer-specific information Customer : CDC Engine : 6 BTA 5.9B KW: 108 Power 1/min: 2500 Speed TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 109 assembly Openina bar: 207.00...210.00 Pressure Perforated-plate diameter mm: 0.5 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Prestroke mm: -(from BDC): -Start of delivery block Piston stroke mm: 1.20 mm: +-0.04(0.06)**Outlet** Injection-pump setting values

Test specifications in parentheses

Timing-device travel 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 1.90...2.30 AFB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Supply-pump pressure 1/min: 1000 Speed Charge press hPa: 1000 Setting value bar: 6.30...6.90 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 850 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 80.00...81.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0) Full-load del. w/out charge press.: Speed 1/min: 500 Del. quantity cm3/ 1000s.: 61.50...62.50 KSB/AFB 11 valve Volt: -Shutoff electromagnet Volt: 12 cm3/: 5.0Dispersion 1000s.: (6.0) Low-idle speed regulation Speed 1/min: 350 Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB Volt: valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation

Speed 1/min: 1350	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
Del. quantity cm3/	+ pressure bar: 5.706.30
1000s.: 55.0061.00	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: -	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	2nd speed 1/min: 1000
	Charge press. hPa: 1000
Start:	+ Supply-pump
	+ pressure bar: 6.306.90
Speed 1/min: 100	+ KSB/AFB
Del. quantity cm3/: 65.0095.00	+ valve Volt: -
mind 1000s.: 65.00	- Shutoff
KSB/AFB	+ electromagnet Volt: 12
Valve Volt: -	+ 3rd speed 1/min: 1250
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	+ Supply-pump
	+ pressure bar: 7.207.80
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	
Tool speet, for total in fact chickens	+ Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12
timing device originates, 15010.	+ 4th speed 1/min: 500
2nd speed 1/min: 1250	valve Volt: - Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Charge press. hPa: 1000 Supply-pump pressure bar: 3.904.50
Charge press hPa: 1000	T Supply-pump
TD travel mm: 2.203.00	pressure bar: 3.904.50
mm: (1.903.30)	+ KSB/AFB
KSB/AFB	+ valve Volt: -
Valve Volt: -	+ Shutoff
Shutoff	
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 1000	
Charge press hPa: 1000	Overlow quantity at overflow valve:
TD travel mm: 1.902.30	T 1st speed 1/min. 500
mm: (1.402.80)	+ 1st speed 1/min: 500
KSB/AFB	+ Charge press. hPa: -
valve Volt: -	+ KSB/AFB
Shutoff	+ valve Volt: -
electromagnet Volt: 12	+ Shutoff
4th speed 1/min: 850	+ electromagnet Volt: 12
	+ Overflow : 41.7086.10
Charge press hPa: 1000 TD travel mm: 0.601.40	quantity cm3/10s: (26.70101.10)
TD travel mm: 0.601.40 mm: (0.301.70)	+ 2nd speed 1/min: 1250
	+ Charge press. hPa: 1000
KSB/AFB valve Volt: -	+ KSB/AFB
	+ valve Volt: -
Shutoff	+ Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
5th speed 1/min: 450	+ Overflow : 55.60139.00
Charge press. hPa: -	+ quantity cm3/10s: (40.60154.00)
TD travel mm: 2.003.00	†
mm: (1.803.20)	† Delivery-quant. and breakaway char.:
KSB/AFB	†
valve Volt: 12	†
Shutoff	+ 1nd speed 1/min: 600
electromagnet Volt: 12	+ Charge-air pressure-setting
One of the second secon	+ point hPa: 450
Supply-pump pressure characteristic:	+ LDA-stroke mm: 6.4
4	+ KSB/AFB
1st speed 1/min: 850	+ valve Volt: -

CO3

Shutoff	+
electromagnet Volt: 12	+ Mech. shutoff:
Del. quantity cm3/: 75.0076.00	+ Mech. Abstellung:
1000s.: (71.5079.50)	1 com notice cang.
2nd speed 1/min: 1480	1st speed 1/min: 1250
Charge press. hPa: 1000	
	+ Charge press. hPa: 1000
KSB/AFB	+ Del. quantity cm3/: 0.003.00
valve Volt: -	† 1000s.: (0.003.00)
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet volt: 12
Del. quantity cm3/: 0.003.00	+ KSB/AFB
1000s.: (0.003.00)	+ valve Volt: -
3rd speed 1/min: 1425	1
Charge press. hPa: 1000	+ Electr. shutoff:
KSB/AFB	T Cecci. Silutori.
	1 104 00000 1/1/10 700
the state of the s	+ 1st speed 1/min: 350
Shutoff	+ Charge press. hPa: -
electromagnet Volt: 12	† Del. quantity cm3/: 0.003.00
Del. quantity cm3/: 10.0040.00	1000s.: (0.003.00)
1000s.: (10.0040.00)	+ Shutoff
5th speed 1/min: 1350	+ electromagnet volt: -
Charge press. hPa: 1000	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: -	T valve volt.
Shutoff	Tall and a later was
	+ Idle delivery:
electromagnet Volt: 12	†
Del. quantity cm3/: 55.0061.00	+ 1st speed 1/min: 350
1000s.: (52.0064.00)	+ KSB/AFB
9th speed 1/min: 1250	+ valve Volt: -
Charge press. hPa: 1000	+ Shutoff
KSB/AFB	electromagnet Volt: 12
valve Volt: -	1 Del guantity on 7/: 11 00 15 00
Shutoff	Del. quantity cm3/: 11.0015.00
	1000s.: (8.0018.00)
electromagnet Volt: 12	+ Dispersion cm3/: 5.5
Del. quantity cm3/: 78.5082.50	+ 1000s.: (7.0)
1000\$.: (77.5083.50)	+ 2nd speed 1/min: 410
10th speed	+ KSB/AFB
Charge press. hPa: 1000	+ valve Volt: -
KSB/AFB	+ Shutoff
valve Volt: -	- electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10008:: (0.003.00)
Del. quantity cm3/: 81.5084.50	T 10003.: (0.003.60)
4000c . (70 co . oc.)	T
1000s.: (79.5086.50)	+ Automatic starting fuel delivery:
12th speed 1/min: 850	†
Charge press. hPa: 1000	+ 1st speed 1/min: 130
KSB/AFB	+ Charge press. hPa: -
valve Volt: -	+ KSB/AFB
Shutoff	+ valve Volt: -
electromagnet Volt: 12	+ Shutoff
Del. quyntity cm3/: 81.0082.00	
1000S.: (78.5084.50)	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 75.00115.00
	† 1000s.: (75.00115.00)
Charge press. hPa: -	†
KSB/AFB	+ 2nd speed 1/min: 200
valve Volt: -	+ Charge press. hPa: -
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: -
Del. quantity cm3/: 61.5062.50	+ Shutoff
10005:: (58.0066.00)	electromagnet Volt: 12
1000. (20.0000.00)	T ececuiomagnet vott. 12

Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00) 4th speed 1/min: 100 Charge press. hPa: -KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...95.00 1000S.: (65.00...95.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.6...3.8 K KF mm: KOT MS1 mm: 1.1...1.4 SVS max. mm: 3.7 mn: 6.4 LDA stroke mm: 34.8...38.8 Ya mm: 43.3...48.9 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : CUM Edition : 22.04.94 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1250R498-2 Type number : 0 460 426 213 Customer Part-No. : 3 282 595 Customer—specific information Customer : CDC Engine : 6 BTA 5.9B Power. KW: 108 1/min: 2500 Speed TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil °C return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 109 assembly Openina bar: 207.00...210.00 Pressure Perforated-plate diameter mm: 0.5 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Prestroke mm: -(from BDC): -Start of delivery block Piston stroke mm: 1.20 mm: +-0.04(0.06)**Outlet** : D

Timing-device travel 1/min: 1000 Speed Charge press. hPa: 1000 Setting value mm: 1.90...2.30 AFB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Supply-pump pressure 1/min: 1000 Charge press hPa: 1000 Setting value bar: 6.30...6.90 KSB/AFB Volt: valve Shutoff electromagnet Volt: 24 Full-load del. with charge press.: 1/min: 850 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 80.00...81.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0) Full-load del. w/out charge press.: 1/min: 500 Del. quantity cm3/ 1000s.: 61.50...62.50 KSB/AFB 11 valve Volt: -Shutoff electromagnet Volt: 24 cm3/: 5.0 Dispersion 1000s.: (6.0) Low-idle speed regulation 1/min: 350 Speed Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation

Injection-pump setting values

Test specifications in parentheses

Speed 1/min: 1350	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
Del. quantity cm3/	+ pressure bar: 5.706.30
1000s.: 55.0061.00	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: -	+ Shutoff
Shutoff	+ electromagnet Volt: 24
electromagnet Volt: 24	2nd speed 1/min: 1000
cocorcinaginos possor en	+ Charge press. hPa: 1000
Start:	
Start.	+ Supply-pump + pressure bar: 6.306.90
Speed 1/min: 100	
	+ KSB/AFB
Del. quantity cm3/: 65.0095.00	+ valve Volt: -
mind 1000s.: 65.00	+ Shutoff
KSB/AFB	+ electromagnet Volt: 24
Valve Volt: -	+ 3rd speed 1/min: 1250
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 24	+ Supply-pump
	+ pressure bar: 7.207.80
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	+ valve Volt: -
,	+ Shutoff
Timing-device characteristic:	electromagnet Volt: 24
· ····································	+ 4th speed 1/min: 500
2nd speed 1/min: 1250	Charge press. hPa: 1000
Charge press hPa: 1000	
TD travel mm: 2.203.00	+ Supply-pump
	pressure bar: 3.904.50
mm: (1.903.30)	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: -	+ Shutoff
Shutoff	+ electromagnet Volt: 24
electromagnet Volt: 24	+
3rd speed 1/min: 1000	Overlow quantity at overflow valve:
Charge press hPa: 1000	+
TD travel mm: 1.902.30	+ 1st speed 1/min: 500
mm: (1.402.80)	Charge press. hPa: -
KSB/AFB	+ KSB/AFB
valve Volt: -	+ valve Volt: -
Shutoff	+ Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
4th speed 1/min: 850	Overflow : 41.7086.10
Charge press hPa: 1000	quantity cm3/10s: (26.70101.10)
TD travel mm: 0.601.40	
	+ 2nd speed 1/min: 1250
mm: (0.301.70) KSB/AFB	+ Charge press. hPa: 1000
	+ KSB/AFB
valve Volt: -	+ valve Volt: -
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
5th speed 1/min: 450	+ Overflow : 55.60139.00
Charge press. hPa: -	+ quantity cm3/10s: (40.60154.00)
TD travel mm: 2.003.00	+
mm: (1.803.20)	+ Delivery-quant. and breakaway char.:
KSB/AFB	+
valve Volt: 24	+
Shutoff	1nd speed 1/min: 600
electromagnet Volt: 24	Charge-air pressure-setting
Carationing to a Appea 64	point hPa: 450
Supply-pump pressure characteristic:	
anther hait hissania marantalistic:	
1st speed 1/min. 950	+ KSB/AFB
1st speed 1/min: 850	+ valve Volt: -

CO7

Shutoff	+		
electromagnet Volt: 24	+	Mech. shutoff:	
Del. quantity cm3/: 75.0076.00	0 +	Mech. Abstellung:	
1000\$.: (71.5079.)	50) +		1050
2nd speed 1/min: 1480	†	1st speed 1/min:	
Charge press. hPa: 1000 KSB/AFB	†	Charge press. hPa:	7000
valve Volt: -	†	Del. quantity cm3/:	(0.005.00
Shutoff	†	Shutoff	(0.003.00)
electromagnet Volt: 24	I	electromagnet volt:	2/4
Del. quantity cm3/: 0.003.00	\mathbf{I}	KSB/AFB	64
10005.: (0.003.00)) 🗼	valve Volt:	
3rd speed 1/min: 1425	_	vacvo voct.	
Charge press. hPa: 1000	<u> </u>	Electr. shutoff:	
KSB/AFB	+		
valve Volt: -	+	1st speed 1/min:	
Shutoff	+	Charge press. hPa:	-
electromagnet Volt: 24	_ +	Del. quantity cm3/:	
Del. quantity cm3/: 10.0040.00			(0.003.00)
10005.: (10.0040.0	((())	Shutoff	
5th speed 1/min: 1350	†	electromagnet volt:	-
Charge press. hPa: 1000 KSB/AFB	†	KSB/AFB	
valve Volt: -	†	valve Volt:	-
Shutoff	Ţ	Idla delivery:	
electromagnet Volt: 24	I	idle delivery.	
Del. quantity cm3/: 55.0061.00	n I	1st speed 1/min:	350
10008.: (52.0064.(KSB/AFB	JJ0
9th speed 1/min: 1250	-	valve Volt:	-
Charge press. hPa: 1000	<u></u>	Shutoff	
KSB/AFB	+	electromagnet Volt:	24
valve Volt: -	+	Del. quantity cm3/:	
Shutoff	+		(8.0018.00)
electromagnet Volt: 24	_ +	Dispersion cm3/:	
Del. quantity cm3/: 78.5082.50	D +	1000s.:	
10008.: (77.5083.	5U) †	2nd speed 1/min:	410
10th speed 1/min: 1100	†	KSB/AFB	
Charge press. hPa: 1000 KSB/AFB	†	valve Volt:	-
valve Volt: -	†	Shutoff	2/
Shutoff	Ţ	electromagnet Volt:	
electromagnet Volt: 24	I	Del. quantity cm3/:	(0.003.00)
Del. quantity cm3/: 81.5084.50	n 👃	10005	(0.005.00)
1000s.: (79.5086.		Automatic starting	fuel delivery:
12th speed 1/min: 850	+	The same of the sa	1400 400,701,71
Charge press. hPa: 1000	+	1st speed 1/min:	130
KSB/AFB	+	Charge press. hPa:	-
valve Volt: -	+	KSB/AFB	
Shutoff	+	valve Volt:	•••
electromagnet Volt: 24	_ +	Shutoff	•
Del. quyntity cm3/: 81.0082.00		electromagnet Volt:	
1000s.: (78.5084.5	ל ייטכ	Del. quantity cm3/:	
18th speed 1/min: 500	†	10005.:	(75.00115.00)
Charge press. hPa: - KSB/AFB	Ţ	2nd speed 1/min:	200
valve Volt: -	I	2nd speed 1/min: Charge press. hPa:	
Shutoff	I	KSB/AFB	
electromagnet Volt: 24	1	valve Volt:	•••
Del. quantity cm3/: 61.5062.50	1	Shutoff	
1000s.: (58.0066.0		electromagnet Volt:	24

Del. quantity cm3/: 60.00...90.00 1000S.: (60.00...90.00)

4th speed 1/min: 100 Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 mm: KOT mm: KOT mm: 1.1...1.4 sys max. mm: 3.7 LDA stroke ya yb mm: 43.3...48.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet

Edition

: 22.04.94

replaces Calibrating oil

: ïso-4113

Injection pump

: VE6/12F1100R579

Type number

: 0 460 426 233

Customer Part-No. :

Customer-specific information

Customer

: FNH-GEOTECH

Engine

: 7.5 L NA/DI

Power

Speed

KW: 90 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 68% 901 110

Opening

Pressure

bar: 250.00...253.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke

mm: -

(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet

: B

Injection pump setting values

Test specifications in parentheses

C10

Timing-device travel

Speed

1/min: 600

Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed

1/min: 600

Setting value bar: 5.00...5.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed

1/min: 800

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 12

Dispersion cm3/: 5.0

1000s.: (5.0)

Low-idle speed regulation

Speed

1/min: 375

Del. quantity cm3/

1000s.: 14.50...15.50

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.0

1000s.: (5.0)

Full-load speed regulation

Speed

1/min: 1180

Del. quantity cm3/ 1000s.: 52.00...58.00

Shutoff.

electromagnet Volt: 12

Start:

Speed

1/min: 100

Del. quantity cm3/: 50.00...110.00

1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 750

TD travel

mm: 1.40...2.20

mm: (1.10...2.50)

Shutoff electromagnet Volt: 12	+ Del. quantity cm3/: 52.005 + 1000s.: (47.00	8.00 63.00)
3rd speed	+ 8th speed 1/min: 1150 + Shutoff	05.007
mm: (0.501.90)	+ electromagnet Volt: 12	
Shutoff electromagnet Volt: 12	Del. quantity cm3/: 50.006	30.00
4th speed 1/min: 500	9th speed 1/min: 1100	
TD travel mm: 0.501.30	+ Shutoff	
mm: (0.201.60) Shutoff	+ electromagnet Volt: 12	24 00
electromagnet Volt: 12	+ Del. quantity cm3/: 67.007 + 1000s.: (65.50	77.00 77.501
5th speed 1/min: 1100	12th speed 1/min: 800	(2.50)
TD travel mm: 2.002.80	+ Shutoff	
mm: (1.703.10)	+ electromagnet Volt: 12	
Shutoff	+ Del. quyntity cm3/: 73.507	4.50
electromagnet Volt: 12	+ 1000s.: (71.00	
	+ 18th speed 1/min: 600	
Supply-pump pressure characteristic:	+ Shutoff	
Ash should Alvin AADD	+ electromagnet Volt: 12	
1st speed 1/min: 1100	+ Del. quantity cm3/: 64.506	
Supply-pump pressure bar: 7.207.80	1000s.: (62.00	68.00)
Shutoff	+ 20th speed 1/min: 450 + Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12	
2nd speed 1/min: 600	+ Del. quantity cm3/: 54.006	an nn
Supply-pump	+ 1000s.: (52.00	
pressure bar: 5.005.40	+	02,00,
Shutoff	<pre>+ Mech. shutoff:</pre>	
electromagnet Volt: 12	+	
3rd speed 1/min: 450	† Electr. shutoff:	
Supply-pump	1.1	
pressure bar: 4.204.80 Shutoff	+ 1st speed 1/min: 375 + Del. quantity cm3/: 0.003.	ΩΩ
electromagnet Volt: 12	1000s.: (0.003	ניטט
	+ Shutoff	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Overlow quantity at overflow valve:	+ electromagnet volt: -	
•	+	
1st speed 1/min: 450	+ Idle delivery:	
Shutoff	1-t annual 1/min 775	
electromagnet Volt: 12 Overflow: 75.00119.50	+ 1st speed 1/min: 375 + Shutoff	
quantity cm3/10s: (60.00133.50)	electromagnet Volt: 12	
2nd speed 1/min: 1100	+ Del. quantity cm3/: 14.501	5.50
Shutoff	+ 1000s.: (10.00	
electromagnet Volt: 12	+ Dispersion cm3/: 5.0	
Overflow : 97.30180.70	+ 1000s.: (5.0)	
quantity cm3/10s: (112.30195.70)	+ 2nd speed 1/min: 460	
Doldy on course and breaker as above	+ Shutoff	
Delivery-quant. and breakaway char.:	+ electromagnet Volt: 12	00
	+ Del. quantity cm3/: 0.003.	
2nd speed 1/min: 1260	† 1000s.: (0.003	.007
Shutoff	Automatic starting fuel deliv	erv:
electromagnet Volt: 12	+	~· /·
Del. quantity cm3/: 0.003.00	+ 1st speed 1/min: 200	
1000\$.: (0.003.00)	+ Shutoff	
5th speed 1/min: 1180	+ electromagnet Volt: 12	
Shutoff	+ Del. quantity cm3/: 85.001	45.00
electromagnet Volt: 12	+ 1000s.: -	

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 51.00...81.00 1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 90.00...150.00 1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8

KF mm: KOT

MS mm: 1.2...1.6 Ya mm: 32.8...34.8 mm: 41.4...48.0 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet Edition : 22.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R584 : 0 460 426 235 Type number

Customer Part-No.:

Customer-specific information Customer : FNH-GEOTECH

: 7.5 L TC Engine

Power KW: 124 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 700 Speed

Charge press. hPa: 1500 Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Charge press hPa: 1500

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 98.50...99.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 74.50...75.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 46.00...52.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

C13

Del. quantity cm3/:		+	Shutoff	
mind 1000s.:	90.00	+	electromagnet Volt: 12	_
Shutoff		+	Overflow : 75.00119.	.50
electromagnet Volt:	12	+	quantity cm3/10s: (60.00134	4.50)
_		+	2nd speed 1/min: 1150	
Inspection—pump tes		+	Charge press. hPa: 1500	
Test specifications	in parentheses	+	Shutoff	
		+	electromagnet Volt: 12	
Timing-device chara	cteristic:	+	Overflow : 97.30180.	.70
		+	quantity cm3/10s: (82.30195	
2nd speed 1/min:	800	+		
Charge press hPa:	1500	1	Delivery-quant. and breakaway ch	nar.
	1.602.40	1	but it and bicarding of	
mm:	(1.302.70)	1		
Shutoff		1	1nd speed 1/min: 650	
electromagnet Volt:	12	Ţ	Charge-air pressure-setting	
3rd speed 1/min:		Ι	point hPa: 600	
	1500	T	Skutoff	
TD travel mm:	1.301.70	T		
	(0.802.20)	T	electromagnet Volt: 12	20
	(0.602.20)	+	Del. quantity cm3/: 90.0092.0	'n.
Shutoff	42	†	1090s.: (28.5094.	.50)
electromagnet Volt:		+	2nd speed 1/min: 1300	
4th speed 1/min:		+	Charge press. hPa: 1500	
	1500	+	Shutoff	
	0.401.20	+	electromagnet Volt: 12	
	(0.101.50)	+	Del. quantity cm3/: 0.003.00	
Shutoff		+	1000s.: (0.003.00	3)
electromagnet Volt:	12	+	3rd speed 1/min: 1250	
5th speed 1/min:	1150	+	Charge press. hPa: 1500	
Charge press. hPa:	1500	1	Shutoff	
	2.002.80	1	electromagnet Volt: 12	
	(1.703.10)	1	Del. quantity cm3/: 46.0052.0	n
Shutoff	(1.1.0.1.5.10)	1	10005.: (43.0055.	מט
electromagnet Volt:	12	Ι	4th speed 1/min: 1200	.007
eteettonagnet vote.	16	Ι	Charge press. hPa: 1500	
Supply-pump pressur	e characteristic:	T	Shutoff	
addition by easing	e that acter 1511t.	T		
1st speed 1/min.	1150	Ť	electromagnet Volt: 12	20
1st speed 1/min:		Ť	Del. quantity cm3/: 68.0098.0	JU
Charge press. hPa:	1500	†	1000s.: -	
Supply-pump	7 (0 0 00	+	5th speed 1/min: 1150	
	7.608.20	+	Charge press. hPa: 1500	
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagne: Volt: 12	
2nd speed 1/min:		+	Del. quantity cm3/: 82.5085.5	
	1500	+	1000s.: (80.5087.	50)
Supply-pump		+	6th speed 1/min: 500	
pressure bar:	5.406.00	+	Charge press. hPa: 1500	
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt: 12	
3rd speed 1/min:		1	Del. quantity cm3/: 117.00123	t nn
	1500	1	1000s.: (115.0012	25 nn
Supply-pump	.300	L	8th speed 1/min: 800	
	4.405.00	1	Charge press. hPa: 1500	
Shutoff	4.405.00	Ι	Shutoff	
electromagnet Volt:	10	T		
ctectromagnet vott:	16	T	electromagnet Volt: 12	· O
Overland dispetitive at	avanfla, value	T	Del. quantity cm3/: 98.5099.5	
Overlow quantity at	overtiow valve:	†	1000\$.: (96.00102	(.00)
4-4	500	†	9th speed 1/min: 500	
1st speed 1/min:		+	Charge press. hPa: -	
Charge press. hPa:	7500	+		

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 74.50...75.50 1000s.: (71.00...79.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.00...18.00 10**00**\$.: (11.00...21.00) cm3/: 5.0Dispersion 1000s.: (5.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...95.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...150.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:

mm: 3.6...3.8

mm: 1.2...1.6 mm: 32.8...34.8 mm: 45.0...51.0

mm: KOT

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

C15

Remarks:

KF

MS Ya Yb

Designation

Note inst. in remarks column

Test scheet : FOR Edition : 22.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R584-1 : 0 460 426 237 Type number

Customer Part-No. :

Customer-specific information Customer : FNH-GEOTECH

: 7.5 L TC Engine

KW: 105 Power Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet : B

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 700

Charge press. hPa: 1500 Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Charge press hPa: 1500

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1180 Speed

Del. quantity cm3/

1000s.: 45.50...51.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

C16

Del. quantity cm3/: 90.00150.00	+ Shutoff
mind 1000s.: 90.00	+ electromagnet Volt: 12
Shutoff	+ Overflow : 75.00119.50
electromagnet Volt: 12	+ quantity cm3/10s: (60.00134.50)
	+ 2nd speed 1/min: 1100
Inspection pump test specifications	+ Charge press. hPa: 1500
Test specifications in parentheses	+ Shutoff
	+ electromagnet Volt: 12
Timing-device characteristic:	+ Overflow : 97.30180.70
-	+ quantity cm3/10s: (82.30195.70)
2nd speed 1/min: 800	+
Charge press hPa: 1500	+ Delivery quant. and breakaway char.:
TD travel mm: 1.202.00	+
mm: (0.902.30)	+
Shutoff	1nd speed 1/min: 650
electromagnet Volt: 12	Charge-air pressure-setting
3rd speed 1/min: 700	+ point hPa: 600
Charge press hPa: 1500	+ Shutoff
TD travel mm: 1.001.40	+ electromagnet Volt: 12
mm: (0.50,1.90)	Del. quantity cm3/: 76.0077.00
Shutoff	10008.: (73.5079.50)
electromagnet Volt: 12	+ 2nd speed 1/min: 1210
4th speed 1/min: 600	Charge press. hPa: 1500
Charge press hPa: 1500	+ Shutoff
TD travel mm: 0.201.00	+ electromagnet Volt: 12
mm: (0.001.30)	Del. quantity cm3/: 0.003.00
Shutoff	10008:: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1180
5th speed 1/min: 1100	Charge press. hPa: 1500
Charge press. hPa: 1500	+ Shutoff
TD travel mm: 2.002.80	
mm: (1.703.10)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 45.5051.50
electromagnet Volt: 12	10008.: (42.5054.50)
etectromagnet vott. 12	+ 4th speed 1/min: 1150
Simply-number processes characteristics	+ Charge press. hPa: 1500
Supply-pump pressure characteristic:	+ Shutoff
1st speed 1/min: 1100	+ alectromagnet Volt: 12
	bel. quantity cm3/: 53.0083.00
Charge press. hPa: 1500	† 1000s.: -
Supply-pump	5th speed 1/min: 1100
pressure bar: 7.408.00	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 700	+ Del. quantity cm3/: 74.0077.00
Charge press. hPa: 1500	1000s.: (72.0079.00)
Supply-pump	+ 6th speed 1/min: 500
pressure bar: 5.406.00	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12 3rd speed 1/min: 500	
ara sheea i/mara aut	+ electromagnet Volt: 12
	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00
Charge press. hPa: 1500	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00 1000s.: (97.00107.00)
Charge press. hPa: 1500 Supply-pump	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90	electromagnet Volt: 12 pel. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00 1000S.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff electromagnet Volt: 12
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 pel. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 84.5085.50
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90 Shutoff	electromagnet Volt: 12 pel. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff electromagnet Volt: 12 pel. quantity cm3/: 84.5085.50 1000s.: (82.0088.00)
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:	electromagnet Volt: 12 Del. quantity cm3/: 99.00105.00 1000S.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 84.5085.50 1000S.: (82.0088.00) 9th speed 1/min: 500
Charge press. hPa: 1500 Supply-pump pressure bar: 4.304.90 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 pel. quantity cm3/: 99.00105.00 1000s.: (97.00107.00) 8th speed 1/min: 800 Charge press. hPa: 1500 Shutoff electromagnet Volt: 12 pel. quantity cm3/: 84.5085.50 1000s.: (82.0088.00)

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.50...61.50 1000s.: (58.00...64.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375
Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 375 1st speed Shutoff 1000s.: (5.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...72.00 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...150.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.6...3.8 mm: KOT K KF mm: 1.2...1.6 MS

mm: 32.8...34.8

mm: 40.7...47.3

Yb = Distance between VE Mange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

C18

Remarks:

Ya

Yb

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

: 22.04.94 Edition

replaces

Calibrating oil

: ISO-4113

Injection pump : VE6/12F1100R579-1

Type number

: 0 460 426 238

Customer Part-No. :

Customer-specific information

Customer

: FNH-GEOTECH

Engine

: 7.5 L TC

Power

KW: 82

Speed

1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 110

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke

mm: -

(from BDC): -

Start of delivery block

Piston stroke mm: 1.0

mm: +-0.04(0.06)

: B

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 6.00...6.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1050 Speed

Del. quantity cm3/

1000s.: 64.50...65.50

Shutoff

electromagnet Volt: 12

cm3/: 5.0 Dispersion

1000s.: (5.0)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 14.50...15.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000\$:: (5.0)

Full-load speed regulation

Speed 1/min: 1180

Del. quantity cm3/

1000s.: 32.00...38.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 85.00...145.00

mind 1000s.: 85.G0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900

TD travel

mm: 1.40...2.20

mm: (1.10...2.50)

1000s.: (27.00 27.00 3rd speed	
TD travel mm: 1.001.40	64.00
mm: (0.501.90) Shutoff electromagnet Volt: 12 4th speed 1/min: 600 TD travel mm: (0.001.40) electromagnet Volt: 12 1000S.: - 9th speed 1/min: 1100 Shutoff electromagnet Volt: 12	64.00
Shutoff electromagnet Volt: 12 4th speed 1/min: 600 TD travel mm: 0.000.80 mm: (0.001.40) Del. quantity cm3/: 54.000 1000s.: - 9th speed 1/min: 1100 Shutoff electromagnet Volt: 12	64.00
electromagnet Volt: 12	04.00
4th speed 1/min: 600 + 9th speed 1/min: 1100 + TD travel mm: 0.000.80 + Shutoff mm: (0.001.40) + electromagnet Volt: 12	
TD travel mm: 0.000.80 + Shutoff mm: (0.001.40) + electromagnet Volt: 12	
1 20001 2000 12	
Shutoff 4 Del_ quantity cm3/+ 61 50 /	
1	
electromagnet Volt: 12 + 1000s.: (60.00	.67.00)
5th speed	
TD travel mm: 2.002.80 + Shutoff electromagnet Volt: 12	
Shutoff Del. quyntity cm3/: 64.50	45 5A
electromagnet Volt: 12 + 1000S.: (62.00	.68 nn)
+ 15th speed 1/min: 800	.00.007
Supply-pump pressure characteristic: + Shutoff	
+ electromagnet Volt: 12	
1st speed 1/min: 1100	
Supply-pump + 1000s.: (68.00	.75.00)
pressure bar: 7.307.80 + 18th speed 1/min: 600	
Shutoff Shutoff	
electromagnet Volt: 12 + electromagnet Volt: 12 2nd speed 1/min: 800 + Del. quantity cm3/: 66.506	(7 EN
Supply-pump + 1000S.: (64.00	
pressure bar: 6.006.40 20th speed 1/min: 450	.70.007
Shutoff + Shutoff	
electromagnet Volt: 12 + electromagnet Volt: 12	
3rd speed 1/min: 450 + Del quantity cm3/: 50.00	56.00
3rd speed 1/min: 450 + Del quantity cm3/: 50.009 Supply-pump + 1000s.: (48.50)	
3rd speed	
3rd speed	
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Del quantity cm3/: 50.009 1000S.: (48.50)	
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Del quantity cm3/: 50.009 1000s.: (48.50 Mech. shutoff: Electr. shutoff:	
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Del quantity cm3/: 50.009 1000s.: (48.50 Mech. shutoff: Electr. shutoff:	
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: Del quantity cm3/: 50.009 1000s.: (48.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff 1st speed 1/min: 450 Shutoff Del quantity cm3/: 50.003 Electr. shutoff: 1st speed 1/min: 375 Del quantity cm3/: 0.003 Shutoff	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.003 Mech. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003 Shutoff electromagnet Volt: 12	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 Del. quantity cm3/: 50.003 Del. quantity cm3/: 50.003 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 bel. quantity cm3/: 0.003 Shutoff electromagnet Volt: 12 Shutoff Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50)	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 bel. quantity cm3/: 50.003 Shutoff electromagnet Volt: 12 Shutoff Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Del. quantity cm3/: 50.009 Hech. shutoff: Electr. shutoff: 1st speed 1/min: 375 bel. quantity cm3/: 0.003 1000S.: (0.003 Shutoff electromagnet Volt: 12 Idle delivery:	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Shutoff Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Del quantity cm3/: 50.009 1000s.: (48.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 Shutoff electromagnet volt: - Idle delivery:	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 Del. quantity cm3/: 50.003 1000s.: (48.50) 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 Del. quantity cm3/: 50.003 1000s.: (48.50 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003	.57.50)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Del quantity cm3/: 50.009 1000s.: (48.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 bel. quantity cm3/: 0.003 1000s.: (0.003 1000s.: (0.003 1000s.:	.00 3.00)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 375 Del. quantity cm3/: 50.003 1000s.: (48.50 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003	.00 3.00)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.0019.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: Del quantity cm3/: 50.001 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000S.: (0.003 Electr. shutoff: 1st speed 1/min: 375 Del delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.501 Dispersion cm3/: 5.0	.00 3.00)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.0019.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: Del quantity cm3/: 50.00 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.00 Shutoff electromagnet volt: - 1st speed 1/min: 375 Shutoff electromagnet volt: - 1st speed 1/min: 375 Shutoff electromagnet volt: - 1ounce: 12 Del. quantity cm3/: 14.50 Dispersion cm3/: 5.0 1000s.: (10.00 Dispersion cm3/: 5.0	.00 3.00)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Mech. shutoff: Overlow quantity at overflow valve: 1st speed 1/min: 375 1st speed 1/min: 450 bel. quantity cm3/: 0.003 Shutoff electromagnet Volt: 12 Shutoff Overflow : 75.00119.50 electromagnet volt: - quantity cm3/10s: (60.00134.50) Idle delivery: Shutoff electromagnet Volt: 12 1st speed 1/min: 375 Overflow : 97.30180.70 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.501 Dispersion cm3/: 5.0 1000s.: (10.000 1000s.: (5.0) 2nd speed 1/min: 1260 2nd speed 1/min: 450	.00 3.00)
3rd speed 1/min: 450 Del quantity cm3/: 50.00	.00 3.00)
3rd speed 1/min: 450 Del quantity cm3/: 50.009 Supply-pump pressure bar: 4.204.80 Mech. shutoff: Shutoff electromagnet Volt: 12 Electr. shutoff: Overlow quantity at overflow valve: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003 1000s.:	.00 3.00)
3rd speed 1/min: 450 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: Del. quantity cm3/2: 50.003 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.50 Dispersion cm3/: 5.0 1000s.: (10.00 Dispersion cm3/: 5.0 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	.57.50) .00 3.00) 15.50 .20.00)
3rd speed 1/min: 450 Del quantity cm3/: 50.009 Supply-pump pressure bar: 4.204.80 Mech. shutoff: Shutoff electromagnet Volt: 12 Electr. shutoff: Overlow quantity at overflow valve: 1st speed 1/min: 375 Del. quantity cm3/: 0.003 1000s.: (0.003 1000s.:	.57.50) .00 3.00) 15.50 .20.00)
3rd speed 1/min: 450 Supply—pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery—quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.003 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 10000s.: (0.003.00) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 10000s.: (0.003.00)	.57.50) .00 3.00) 15.50 .20.00)

1/min: 200 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00 1000s.: -

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 85.00...145.00

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K

KF mm: KOT

mm: 1.2...1.6 mm: 32.8...34.8 mm: 41.5...48.1 MS Ya

Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : FIA 1.9 H2 : 29.04.94 Edition : 15.10.91 replaces Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R335 : 0 460 484 023 Type number Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

: M704 DA 13.0 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1600 Speed

Setting value mm: 5.40...5.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1600 Speed

Setting value bar: 5.00...5.60

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1600

Del. quantity cm3/

1000s.: 22.30...23.30

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (2.5)

Low-idle speed regulation

Speed 1/min: 390

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2700 Speed

Del. quantity cm3/

1000s.: 10.00...16.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 27.00...53.00 mind 1000s.: 27.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Ini.-qty.dif.measurement:

1/min: 1500 Speed

Inj.-qty. cm3/

difference 1000s.: -7.00..-13.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: -0.90..-1.10

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

C22

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 2700 2nd speed 1/min: 2500 mm: 8.60...9.40 mm: (8.30...9.70) TD travel 5th speed Shutoff Shutoff electromagnet Volt: 12
3rd speed 1/min: 1600
TD travel mm: 5.40...5.80 mm: (4.90...6.30) Shutoff Shutoff electromagnet Volt: 12 4th speed 1/min: 800 mm: 1.60...2./7 mm: (1.30...2./0) TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 22.30...24.70
10005.: (21.20...25.80) Shutoff electromagnet Volt: 12 5th speed 1/min: 2000 mm: 7.60...8.40 TD travel 1/min: 1600 12th speed mm: (7.30...8.70) Shutoff Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.30...19.30 1000S.: (14.80...20.80) 1st speed 1/min: 2500 Supply-pump pressure bar: 7.80...8.40 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1600 Mech. shutoff: Supply-pump Electr. shutoff: pressure bar: 5.00...5.60 Shutoff 1st speed 1/min: 390 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 3rd speed 1/min: 600 1000s.: (0.00...3.00) Supply-pump Shutoff pressure bar: 2.20...2.30 electromagnet volt: -Shutoff electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 390 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 8.00...12.00
1000S.: (5.00...15.00)
Dispersion cm3/: 2.5 1st speed 1/min: 600 Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 cm3/10s: (26.70...98.40) 1/min: 2500 1000S.: (2.5) 1/min: 440 quantity 2nd speed 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) electromagnet Volt: 12 : 55.60...138.00 cm3/10s: (40.60...153.00) Overflow quantity 1/min: 500 4th speed Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 2850 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery:

1/min: 400 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 25.00...35.00 1000s.: (25.00...35.00)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 13.00...23.00 1000S.: (13.00...23.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 27.00...53.00

1000s.: (27.00...53.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.1...5.5 mm: 1.3...1.7 mm: 37.2...39.2 K KF MS Yā Yb mm: 42.8...51.5

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW

: 29.04.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R66-15

Type number : 0 460 494 165

Customer Part-No. :

Customer-specific information

Customer : VWB

: 1.6L SANTANA/GOL Engine

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-nolder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter ; 6.00

x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 2.90...3.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

C25

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 33.00...34.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 475

Del. quantity cm3/ 1000s.: 6.50...10.5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000S.: (3.0)

Full-load speed regulation

1/min: 2600

Del. quantity cm3/

1000s.: 11.50...17.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...65.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2400

TD travel mm: 6.10...6.90 mm: (5.80...7.20) electromagnet Volt: 12 2nd speed 1/min: 1500 TD travel mm: 2.00 TD mm: 2.90...3.30

mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1000

TD travel mm: 1.20...2.00

mm: (0.90...2.30)

Shutoff

electromagnet Volt: 12

Supply-pump pressure	e characteristic:	+	Mech. shutoff:
1st speed 1/min: Supply-pump	2400	Ī	Electr. shutoff:
pressure bar: Shutoff	7.007.60	+	1st speed
electromagnet Volt: 2nd speed 1/min: Supply-pump	12 1500	<u> </u>	1000\$.: (0.003.00) Shutoff electromagnet volt: -
pressure bar: Shutoff	4.905.50	+	Idle delivery:
electromagnet Volt: 3rd speed 1/min: Supply-pump		‡	1st speed 1/min: 475 Shutoff
pressure bar: Shutoff	2.102.70	1	electromagnet Volt: 12 Del. quantity cm3/: 6.5010.50
electromagnet Volt:		‡	1000S.: (4.5012.50) Dispersion cm3/: 2.0
Overlow quantity at 1st speed 1/min:		‡	1000s.: (3.0) 2nd speed 1/min: 650 Shutoff
Shutoff electromagnet Volt:		Ī	electromagnet Volt: 12 Del. quantity cm3/: 0.006.00
Overflow : quantity cm3/10s:	41.7083.40 (27.8097.30)	‡	1000s.: - 3rd speed 1/min: 1200
2nd speed 1/min: Shuroff		+	Shutoff electromagnet Volt: 12
electromagnet Volt: Overflow : quantity cm3/10s:	55.60138.90	‡	Del. quantity cm3/: 0.003.00 1000S.: -
Delivery-quant. and		‡	Automatic starting fuel delivery:
and mand a tring	2702	+	1st speed 1/min: 500 Shutoff
<pre>1nd speed 1/min: Shutoff electromagnet Volt:</pre>		Ī	electromagnet Volt: 12 Del. quantity cm3/: 15.0025.00 1000s.: -
Del. quantity cm3/:	2.0010.00 (1.0011.00)	Ī	2nd speed 1/min: 400
2nd speed 1/min: Shutoff		+	Shutoff electromagnet Volt: 12
electromagnet Volt: Del. quantity cm3/: 1000S.:		†	tel. quantity cm3/: 33.0043.00 1000s.: -
3rd speed 1/min: Shutoff	2400	‡	4th speed 1/min: 100 Shutoff
	27.3029.70 (26.2030.80)	†	electromagnet Volt: 12 Del. quantity cm3/: 35.0065.00 1000S.: -
4th speed 1/min: Shutoff electromagnet Volt:		Ī	Shutoff electromagnet:
Del. quantity cm3/:	33.0034.00 (31.3035.70)	+	Cut-in min voltage : 10.0 Pated voltage : 12.0
Shutoff electromagnet Volt:		Ī	Rated voltage : 12.0 Mounting and assembly dimensions:
Del. quantity cm3/:		†	Designation

KF mm: 5.6...6.0 MS mm: 1.2...1.6 SVS max. mm: 1.8 Ya mm: 38.6...40.6 Yb mm: 50.4...63.3

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : 28.04.94 Edition replaces : 02.07.92 Calibrating oil : ISO-4113 Injection pump : VE4/9F2500R341 Type number : 9 460 620 003 Customer-specific information Customer : ISUZU Engine : 4EC1-BADT TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 344 Calibra ng-oil retun no. with immometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.35 Calibrating nozzle-holder assembly : 1 688 901 022 Opening | Pressure bar: 130...133 Test inj. tubing : 1 680 750 073 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450 Start of delivery Prestroke mm: -(from BDC): -Injection-pump setting values Test specifications in parentheses Timing-device travel Speed 1/min: 1250 Charge press. hPa: 700 Setting value mm: 2.80...3.20 Shutoff electromagnet Volt: 12

hPa: 700 Charge press Setting value bar: 3.80...4.40 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 1500 Charge press. hPa: 700 Del. quantity cm3/ 1000s.: 46.90...47.90 Shutoff electromagnet Volt: 12 Dispersion cm3/: ~ 1000s.: (2.5) Full-load del. w/out charge press.: Speed 1/min: 600 Dei. quantity cm3/ 1000s.: 33.80...37.80 Shutoff electromagnet Volt: 12 Low-idle speed regulation 1/min: 425 Del. quantity cm3/ 1000s.: 8.50...12.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0) Full-load speed regulation Speed 1/min: 425 Charge press hPa: 700 Del. quantity cm3/ 1000s.: 19.60...25.60 Shutoff electromagnet Volt: 12 Start: Speed 1/min: 100 Del. quantity cm3/: 38.00...70.00 1000s.: 38.00 mind Shutoff electromagnet Volt: 12 Load-dependent start of delivery: Inj.-qty.dif.measurement: Speed 1/min: 1250 hPa: 700 Charge press Inj.-qty. cm3/difference 1000s.: 16.00...24.00 Shutoff electromagnet Volt: 12

Speed

Supply-pump pressure

1/min: 1250

TD-travel dif.measu		+	Shutoff	10
correttore anticipo	interione (SV)	+	electromagnet Volt:	12
1. Speed 1/min:	1250	⊥	Overflow :	
		T	OVELLEOW .	12.00117.20
Charge press hPa:	7 00	+	quantity cm3/10s:	(75.00119.50)
TD-travel		1	2nd speed 1/min:	
	1 /0 1 /0			
difference mm:	1.401.00	+	Charge press. hPa:	7UU
Shutoff		┶	Shutoff	
electromagnet Volt:	12	1		42
etectionagnet vott.	12	T	electromagnet Volt:	14
	•	+	Overflow :	94.50139.00
Inspection pump tes	t specifications	1		
		T	quantity cm3/10s:	(%4.⊅0139.00)
Test specifications	in parentheses	+		
		i	Not discourse and	handler in alexa.
		T	Delivery-quant. and	breakaway char.:
Timing-device chara	cteristic:	+		
_		\perp		
1-4 1 1/	(20	Ţ		4500
1st speed 1/min:		+	1nd speed 1/min:	7000
Charge press hPa:	700	T	Charge air pressure	
		1	charge all pressure	3600 Hig
	0.301.10	+	point hPa:	34U
mm:	(0.001.40)	\perp	Shutoff	
		1		40
electromagnet Volt:	12	+	electromagnet Volt:	12
2nd speed 1/min:	1250	┶	Del. quantity cm3/:	43 30 44 30
		1		
Charge press hPa:		+	1000\$.:	(41.3046.30)
TD travel mm:	2.803.20	1	2nd speed 1/min:	2050
	(2.303.70)	1		
	(2.303./0)	+	Charge press. hPa:	7UU
Shutoff		ᅪ	Shutoff	
	12	1		40
electromagnet Volt:		†	electromagnet Volt:	12
3rd speed 1/min:	2600 -	↓	Del. quantity cm3/:	0 00 15 00
Charge press hPa:		1		
		T	10005.:	(0.0015.00)
TD travel mm:	5.606.40	+-	3rd speed 1/min:	2750
mm ·	(5.306.70)	1_	Charge press. hPa:	
	(3.300.70)	T		<i>1</i> 00
Shutoff	•	+	Shutoff	
electromagnet Volt:	12	L	electromagnet Volt:	12
		T		
4th speed 1/min:		+	Del. quantity cm3/:	19.6025.60
Charge press hPa:	700	L		(18.6026.60)
The transfer of	((0 7 (0	1		
TD travel mm:	0.007.40	+	4th speed /1/min:	2600
mm:	(6.307.70)	1	Charge press. hPa:	700
	(0.00.111110)	1		700
	•	†	Shutoff	
Supply-pump pressure	e characteristic:	+	electromagnet Volt:	12
a fata ay faranta far and min		ł	Dal supplied vote:	2/ 40 7/ 40
		T	Del. quantity cm3/:	20.1034.10
1st speed 1/min:	620	╄	1000s.:	(26.1034.10)
Charge press. hPa:		1	5th speed 1/min:	2500
	100	T		
Surpply-pump	-	+	Charge press. hPa:	700
	2.202.80	1	Shutoff	
	2.202.00			40
Shutoff	-	t	electromagnet Volt:	12
electromagnet Volt:	12	1	Del. quantity cm3/:	34 10 37 10
		i		
2nd speed 1/min:		†	1000S.:	(33.3037.90)
Charge press. hPa:	700	∔	6th speed 1/min:	2300
		j		
Supply-pump .		†	Charge press. hPa:	700
pressure bar:	2.804.40	+	Shutoff	
Shutoff		1		12
		Т	electromagnet Volt:	
electromagnet Volt:	12 -	 -	Del. quantity cm3/:	44.5047.50
3rd speed 1/min:		L		(43.8048.20)
		T		
Charge press. hPa:	700 -	╁	7th speed 1/min:	2000
Supply-pump	_	L	Charge press. hPa:	
	/ 20 / 00	1		700
	6.206.80	†	Shutoff	
Shutoff		1	electromagnet Volt:	12
	12	ł		
electromagnet Volt:	16	Τ	Del. quantity cm3/:	
	-	∔		(43.8047.80)
Overlow quantity at	overflow value.	L		
over tow qualitity at	Over I TOM AUTAG!	Т	8th speed 1/min:	
	-	+	Charge press. hPa:	700
1st speed 1/min:	KAA	L	The second secon	
upour 1/11/11/11	-	1		

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.90...47.90 1000\$:: (45.10...49.70) 9th speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.60...38.60 1000s.: (34.10,..39.10) 1/min: 1300 10th speed Charge press. hPa: 700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.10...49.10 1000s.: (45.60...49.60) 1/min: 600 11th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.80...37.80 1000s.: (32.80...38.80) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 425 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) Dispersion cm3/: 2.5 1000s.: (3.0) 1/min: 550 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: 700 Inj.-qty. cm3/ : 16.00...24.00 difference 1000s.: (16.00...24.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1250 1st speed Charge press. hPa: 700 TD-travel : 1.40...1.60 mm: (1.40...1.60)

Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...57.50 1000s.: (42.50...57.50) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 38.00...70.00 1000s.: (38.00...70.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:

Designation mm: 3.2...3.4 mm: 5.7...5.9 KF MS mm: 0.8...1.0 SVS max. mm: -

Remarks:

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

002

difference

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : HAN Test sheet : 11.6.94 Edition Replaces : 11.93 Test oil : ISO-4113 Combination no. : 0 400 674 048 Injection pump Pump designation : PE4A95D42ORS2662-1 EP type number : 0 410 694 994 Governor Governor design. RSV350...1100A8C2222 -2R : 0 420 233 339 Governer no. Customer-spec. information Customer : HANOMAG Engine : D944T : 97.0 1st version k₩ Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening : 172...175 pressure, bar Test lines : 1 680 750 003 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-2-4-3

Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100 Rack travel in mm : 12.75...12.85 Del.quantity cm3/: 12.9...13.1 100 s: (12.7...12.3) Spread cm3 : 0.3100 s: (0.8) rpm : 350.0 2nd speed Rack travel in mm : 6.2...6.4 Del.quantity cm3/ : 1.1...1.5 100 s: (0.9...1.7) Spread cm3 : 0.5100 s: (0.9) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 3.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 129.0...131.0 Del.quantity 1000 : (127.0...133.0) cm3 Spread : 3.50 (00.8): 0001 RATED SPEED 1st version Control lever position degrees: 96...104 Testing: 1st rack travel in: 11.80 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed

3rd rack travel in: 4.00

rpm : 1205...1235 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 5.8 Testina: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 350 Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00 rpm : 470...530 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 12.75...12.85 rpm : 500 2nd speed Rack travel in m: 13.25...13.35 3rd speed rpm : 900 Rack travel in m: 12.90...13.10 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 129.5...133.5 1000 s: (127.5...135.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 1140...1150 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 122.5...137.5

1000 s: (120.0...140.0)

Rack travel in mm : 19.50...21.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS				
Note remarks				
Test sheet Edition Replaces Test oil	: MB : 7.4.94 : - : ISO-4113			
Combination no.	: 0 400 846 614			
Governor	: PES6A95D410RS2844 : O 410 896 893 : RQV3001400AB1065			
Governer no.	-31L : 0 420 212 246			
Customer-spec. in	formation : MERCEDES-BENZ			
Engine	: OM 366			
1st version kW Rated speed	: 97.0 : 2800			
TEST BENCH REQUIR	EMENTS			
Test oil inlet temp. °C	: 3842			
Overflow valve	: 1 419 992 198			
Inlet press., bar	: 1.50			
Test nozzle holde assembly	r : 0 681 343 009			
Opening pressure, bar	: 172175			
Test Lines	: 1 680 750 015			
Outside diameter x Wall thickness x Length mm	: 6.00x1.50x600			
(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values				
BEGINNING OF DELI Test pressure, ba				

: 3.20...3.30 : (3.15...3.35)

```
Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-
Phasing
0-60-120-180-240-300
Tolerance + - ^{\circ} : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed
             rpm: 1400
Rack travel in mm : 8.70...8.80
Del.quantity cm3/: 7.3...7.5
            100 s: (7.1...7.7)
Spread
            cm3 : 0.3
            100 s: (0.6)
2nd speed
            rpm : 300
Rack travel in mm : 4.4...4.6
Del.quantity cm3/: 0.8...1.2
            100 s: (0.5...1.4)
            cm3 : 0.3
Spread
            100 s: (0.5)
(B) Setting of injection pump
   with governor
GUIDE SLEEVE TRAVEL
1st speed
            rpm : 300
 travel mm
                 : 0.85...1.35
            rpm : 5900
2nd speed
 travel nm
                 : 3.25...3.75
3rd speed
            rpm : 640
                 : 3.65...4.15
 travel mm
            rpm : 925
4th speed
 travel mm
                 : 4.60...5.00
5th speed
            rpm : 1450
 travel mm
                 : 8.05...8.15
GUIDE SLEEVE POSITION
Control-lever position
           Degree: -1
            rpm : 1450
Speed
Rack travel in mm: 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
            rpm : 1400
```

Prestroke mm

Del.quantity : 73.0...75.0 1000 : (71.0...77.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 109...117 Testing: 1st rack travel in: 7.75 rpm : 1440...1450 Speed 2nd rack travel in: 4.00 rpm : 1510...1540 Speed 4th rack travel in: 1650 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 60...68 Testing: Speed rpm : 100 Minimum rack trave: 6.00 Speed rpm : 300 Rack travel in mm : 4.40...4.60 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 55.5...58.5 1000 s: (53.0...61.0 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.75 Speed rpm : 1440...1450 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0

:

1000 s: (75.0...91.0)

Rack travel in mm : 10.80...11.20

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.50...2.60 : (2.45...2.65) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1- 3- 2 Test sheet : KHD 1 g 36 : 11.06.94 Edition Replaces : 07.04.89 Test oil : ISO-4113 Phasing : 0-120-240 Combination no. : 0 400 863 015 : 0.50 (0.75) Tolerance + - ° Injection pump BASIC SETTING Pump designation : PES3A85D410/3RS2642 EP type number : 0 410 883 989 1st speed rpm: 1200 Governor Governor design. Rack travel in mm : 10.30...10.40 RSV325...1200A2c2102 -31_ Del.quantity cm3/: 6.8...6.9 : 0 420 232 508 Governer no. 100 s: (6.6...7.1) Customer-spec, information Customer : KHD Spread cm3 : 0.3Engine : F3L913 100 s: (0.5) 1st version kW : 44.0 2nd speed rpm : 325.0 Rated speed : 2400 Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 0.9...1.6 TEST BENCH REQUIREMENTS 100 s: (0.7...1.8) Spread cm3 : 0.2Test oil 100 s: (0.4) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 000 Degree: -3 Speed rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder Governor spring pre-tension assembly : 0 681 343 009 Click setting x : 3.75Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rpm : 1200 Test Lines : 1 680 750 014 : 68.5...69.5 Del.quantity : (66.5...71.5) 1000 Outside diameter : 3.00 Spread cm3 x Wall thickness 1000 : (5.00) x Length mm : 6.00X2.00X600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 94...102 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 9.30 rpm : 1240...1250 Speed

2nd rack travel in: 4.00

rpm : 1275...1305 Speed 3rd rack travel in: 4.00 Speed rpm : 1295...1325 4th rack travel in: 1460 rom : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 7.4 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325
Rack travel in mm : 7.80...8.00 Rack travel in mm : 2.00 Speed : 440...500 rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.30...10.40 nd speed rpm : 500 Rack travel in m: 10.70...10.90 2nd speed 3rd speed rpm : 750 Rack travel in m: 10.65...10.85 4th speed rpm : 875 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750
Del.quantity cm3/ : 59.0...61.0 1000 s: (56.5...63.5) rpm : 750 Speed Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.30 rpm : 1240...1250 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) Rack travel in mm : 19.50...21.00

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 34 Edition : 11.06.94 Replaces : 30.11.93 Test oil : ISO-4113

Combination no. : 0 400 864 070

Injection pump

Pump designation : PES4A85D410/3RS2732 EP type number : 0 410 884 947

Governor

Governor design. : RSV325...1175A8C2223

-2L

Governer no. : 0 420 232 484

Customer—spec. information Customer : KHD

Engine : F4L913

1st version kW : 56.0 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60 : (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

 $\text{Yolerance} + - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1175

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 6.8...6.9

100 s: (6.6...7.1)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 325.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 300

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1175

Del.quantity : 68.0...69.0

1000 : (66.0...71.0)

Spread cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testina:

1st rack travel in: 8.90

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1245...1275 3rd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1425 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 5.6 Testing: Speed : 100 rpm Minimum rack trave: 19.50 Speed : 325 rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 Speed rpm : 450...510 TORQUE CONTROL Torque control curve - 1st version rpm : 1175 1st speed Rack travel in m: 9.90...10.00 nd speed rpm : 500 Rack travel in m: 10.55...10.65 2nd speed 4th speed rpm : 800 Rack travel in m: 10.25...10.45 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 800 rpm Del.quantity cm3/: 61.0...63.0 1000 s: (58.5...65.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.90 Speed rpm : 1215...1225 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) Rack travel in mm : 17.70...17.90 Remarks: : RENAULT **APPLICATION** Tractor (tractor engines)

010

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.50...2.60 : (2.45...2.65) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 : KHD 1 g 43 : 11.06.94 Test sheet Edition : 02.08.91 Replaces Test oil : ISO-4113 Phasing : 0-90-180-270 Combination no. : 0 400 864 074 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES4A85D410/3RS2638 EP type number : 0 410 884 950 1st speed rpm: 1150 Governor Governor design. Rack travel in mm : 11.40...11.50 RSV325...1150AOC2168-4L Del.quantity cm3/ : 7.1...7.2 : 0 420 232 524 Governer no. 100 s: (6.9...7.4) Customer-spec. information Customer : KHD Spread cm3 : 0.3Engine : BF4L913T 100 s: (0.5) rpm : 325.0 1st version kW : 60.0 2nd speed Rated speed : 2300 Rack travel in mm: 9.0...9.2 Del.quantity cm3/: 1.6...2.2 TEST BENCH REQUIREMENTS 100 s: (1.4...2.4) Spread cm3 : 0.2Test oil 100 s: (0.4) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-Lever position : 1 417 413 000 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder Governor spring pre-tension assembly : 0 681 343 009 Click setting x : 4.00Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rom : 1150: 71.5...72.5 Test Lines : 1 680 750 014 Del.quantity 1000 : (69.5...74.5) Outside diameter cm3 : 3.00 Spread x Wall thickness 1000 : (5.00) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control Lever per values _ position degrees: 101...109 BEGINNING OF DELIVERY Testina: Test pressure, bar: 25...27 1st rack travel in: 10.40

rpm : 1190...1200

Speed

2nd rack travel in: 4.00

Speed : 1270...1300 rpm 3rd rack travel in: 4.00 Speed rpm : 1340...1370 4th rack travel in: 1500 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 76...84 Satting point wout bumper spring rpm : 325 Rack travel in mm : 8.6 Testing: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 9.00...9.20 Rack travel in mm : 2.00 Speed rpn : 735...795 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 11.40...11.50 2nd speed : 500 rpm Rack travel in m: 12.60...12.80 3rd speed rpm : 800 Rack travel in m: 12.00...12.10 4th speed rpm : 940 Rack travel in m. 12.00...12.10 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed CDM Del.quantity cm3/: 71.5...73.5 1000 s: (69.0...76.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 Speed rpm : 1190...1200 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 125.0...135.0 1000 s: (122.0...138.0) Rack travel in mm : 19.50...27.00 Remarks: : DX3X **APPLICATION**

Tractor (tractor engines)

012

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 1.90...2.00 : (1.85...2.05) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Note remarks Test sheet : KHD : 11.06.94 Edition Replaces : 14.02.92 Test oil : ISO-4113 Phasina : 0-72-144-216-288 Combination no. : 0 400 865 019 Tolerance $+ - \circ : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES5A80D410/3RS2526 EP type number : 0 410 885 904 rpm: 1130 1st speed Governor Governor design. Rack travel in mm : 12.60...12.70 RSV325...1150A8C604-1L Del.quantity cm3/: 6.5...6.6 : 0 420 232 573 Governer no. 100 s: (6.3...6.7) Customer-spec. information Customer : KHD Spread cm3 : 0.2Engine : F5L912 100 s: (0.4) : 62.0 1st version kW 2nd speed rpm : 325.0 Rated speed : 2300 Rack travel in mm: 8.9...9.1 Del.quantity cm3/: 0.9...1.5 TEST BENCH REQUIREMENTS 100 s: (0.7...1.6) cm3 : 0.2Spread Test oil 100 s: (0.3) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve : 1 417 413 000 Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Inlet press., bar: 1.00 Test nozzle holder Governor spring pre-tension : 0 681 343 009 assembly Click setting x : 4.50**Opening** FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rpm : 1130 Test lines : 1 680 750 014 Del.quantity : 65.0...66.0 1000 : (63.5...67.5) Outside diameter : 2.50 Spread cm3 x Wall thickness 1000 : (4.00) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 100...108 BEGINNING OF DELIVERY Testina: Test pressure, bar: 25...27 1st rack travel in: 11.60 rpm : 1170...1180 Speed

2nd rack travel in: 4.00

Speed rpm : 1215...1245

3rd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 65...73

Setting point wout bumper spring

Speed rpm : 325 Rack travel in mm : 8.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325

Rack travel in mm : 8.90...9.10

Rack travel in mm : 2.00

Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1130

Rack travel in m: 12.60...12.70

2nd speed rpm : 500

Rack travel in m: 13.30...13.40

4th speed rpm : 910

Rack travel in m: 12.90...13.10

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1170...1180

Remarks:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 11.6.94 Replaces Test oil : ISO-4113 Combination no. : 0 400 866 177 Injection pump Pump designation : PES6A95D12ORS2859 E? type number : 0 410 896 890 Governor Governor design. RSV410...1050A0c2260 -2R Governer no. : 0 420 233 342 Customer—spec. information Customer : CUMMINS Engine : 6 BT 1st version kW : 150.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.00 Test nozzle holder assembly : 1 688 901 101 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Lenath mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses

Test pressure, bar: 25...27 : 2.10...2.20 : (2.05...2.25) Prestroke mm Rack travel in mm : 9.00...12.00 : 1-3-4-2 Firing order Phasina : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 10.95...11.05 Del.quantity cm3/ : 9.6...9.8 100 s: (9.4...10.0) cm3 : 0.3Spread 100 s: (0.8) 2nd speed rpm : 430Rack travel in mm : 6.9...7.0 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.5Spread 100 s: (0.9) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 1.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 Aneroid pressure h: 900 : 96.0...98.0 Del.quantity 1000 : (94.0...100.0) : 3.50 Spread cm3 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 81...89

Testing:

BEGINNING OF DELIVERY

per values ___

Set equal delivery quant.

1st rack travel in: 10.00 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 3rd rack travel in: 4.00 Speed rpm: 1180...1210 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 62...70 Setting point w/out bumper spring rom : 430 Rack travel in mm: 6.50 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 430 Speed Rack travel in mm : 6.90...7.10 Rack travel in mm : 2.00 rpm : 490...550 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 10.95...11.05 2nd speed rpm : 500 Rack travel in m: 10.95...11.15 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 900 Rack travel mm : 11.05...11.15 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 9.40...9.60
2nd pressure hPa : 550
Rack travel in m: 10.60...10.70
3rd pressure hPa : 260 Rack travel in m: 9.80...10.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm : 500 Del.quantity cm3/ : 85.5...87.5 1000 s: (83.5...89.5)

Aneroid pressure h: -

D16

Speed rpm : 500 Del.quantity cm3/ : 57.0...59.0 1000 s: (55.0...61.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1090...1110 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 107.5...122.5 1000 s: (105.0...125.0) Rack travel in mm : 13.80...14.20 Remarks: Start-of-delivery mark 11.5° cam angle after start of delivery cyl. 1 Latching at 0.75 bar...0.85 bar. Unlatching at 0.40 bar...0.50 bar

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 25...27 Note remarks : 2.55...2.65 : (2.50...2.70) Prestroke mm Rack travel in mm : 9.00...12.00 Test sheet : FOR : 11.6.94 Edition Firing order : 1-5-3-6-2-: 01.12.93 Replaces Test oil : ISO-4113 Combination no. : 0 400 876 410 Phasina Injection pump 0-60-120-180-240-300 Pump designation : PES6A95D41ORS2838 EP type number · 0 410 896 895 Tolerance $+ - \circ : 0.50 (0.75)$ Governor Governor design. BASIC SETTING RSV400...1050A2C2263 1st speed rpm: 1250 Governer no. : 0 420 232 589 Rack travel in mm : 10.75...10.85 Customer—spec. information Customer : FNH-GEOTECH Del.quantity cm3/: 9.4...9.6 Engine : 7.5 L5 100 s: (9.2...9.8) 1st version kW : 119.0 Spread cm3 : 0.3Rated speed : 2100 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 450.02nd speed Test oil Rack travel in mm : 5.6...5.8 inlet temp. °C : 38...42 Del.quantity cm3/: 1.3...1.7 100 s: (1.1...2.0) Overflow valve Spread cm3 : 0.5: 1 419 992 198 100 s: (0.9) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 101 rpm : 800 assembly Speed Rack travel in mm : 0.30...0.70 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : 5.00Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 008 Speed rpm : 1250 Aneroid pressure h: 700 Del.quantity : 94.5...96.5 1000 : (92.5...98.5) Outside diameter x Wall thickness : 3.50 x Length mm : 6.00x2.00x600 Spread cm3 1000 : (8.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values _ 1st version Control lever BEGINNING OF DELIVERY

position degrees: 104...112

Testing:

1st rack travel in: 9.80

rpm : 1293...1298

2nd rack travel in: 4.00

Speed rpm : 1368...1373 4th rack travel in: 1475

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 74...82

Setting point w/out bumper spring

rpm : 450 Rack travel in mm: 5.2

Testing:

Speed rpm : 100

Minimum rack trave: 19.50 : 450 Speed rom

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

: 510...570 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.75...10.85

2nd speed rpm : 600

Rack travel in m: 10.75...10.95

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 700 Pressure

Rack travel mm : 10.70...10.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.40

2nd pressure hPa : 475

Rack travel in m: 10.15...10.25

3rd pressure hPa : 310

Rack travel in m: 8.80...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600 Del.quantity cm3/: 99.0...103.0

1000 s: (97.0...105.0)

Aneroid pressure h: -

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1293...1298

Speed rpm : 500 Del.quantity cm3/ : 60.5...62.5 1000 s: (58.5...64.5)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 183.0...203.0

1000 s: (180.0...206.0)

Rack travel in mm: 18.30

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.20...5.50

Del.quantity cm3/: 13.0...17.0

1000 s: (10.5...19.5)

Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.40 bar...0.50 bar

D18

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA Edition : 11.06.94 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 926AA Injection pump Pump designation : PE6P110A720R\$3040-2 EP type number : 0 411 816 774 Governor Governor design. : RQV200...1100PA555-4 : 0 421 813 878 Governer no. Customer-spec. information Customer : SCANIA Engine : DS11 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 683 901 104 Openina pressure, bar : 250...253 Orifice plate diameter mm : 0,7 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.30...3.40

: (3.25...3.45)

Rack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2-Firing order Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm: 700 1st speed Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 17.1...17.3 100 s: (16.8...17.6) Spread cm3 : 0.8100 s: (1.2) rpm : 250 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.1.. 1.7 100 s: (0.8...2.0) Spread cm3 : 0.4100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 225 1st speed : 1.10...1.50 travel mm rpm : 350 2nd speed travel mm : 2.30...2.90 rpm : 700 3rd speed : 4.70...5.30 travel mm 4th speed rpm : 1050 travel mm : 8.40...8.60 rpm : 1165 5th speed travel mm : 9.90...10.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1070 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700

Aneroid pressure h: 1500

Prestroke mm

Del.quantity : 171.0...173.0

1000 : (169.0...175.0)

cm3 : 8.00Spread 1000 : (12.0)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testina:

1st rack travel in: 11.90 rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305

4th rack travel in: 1400

Speed rom : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 65...73

Testing:

rpm : 150 Speed Minimum rack trave: 5.50

Speed rpm : 250 Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.90...13.00 2nd speed rpm : 1000 Rack travel in m: 12.90...13.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 1500 Pressure

: 12.90...13.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 1000 Speed

Del.quantity cm3/: 160.0...168.0

1000 s: (158.0...172.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 112.0...116.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO

diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAE 12,0 a Edition : 14.06.94 Replaces : 05.10.92 Test oil : ISO-4113

Combination no. : 0 401 846 933

Injection pump

Pump designation : PE6P110A320RS3260 EP type number : 0 411 816 775

Governor

Governor design. : RQ250/1050PA969 : 0 421 801 538 Governer no.

Customer-spec. information Customer : HAEP

Engine : X6130 NA

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70

: (3.55...3.75) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm: 12.10...12.20

Del.quantity cm3/: 13.0...13.2

100 s: (12.7...13.4)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.02nd speed Rack travel in mm: 7.6...8.0 Del.quantity cm3/: 1.5...2.0

100 s: (1.2...2.2) cm3 : 0.4

Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 500

Speed Rack travel in mm : 12.50...14.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

: 130.0...132.0 Del.quantity

1000 : (127.5...134.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 500 Rack travel in mm: 13.4

Testing:

1st rack travel in: 10.40

rpm : 1085...1100 Speed 2nd rack travel in: 4.00

rpm : 1110...1140 Speed

4th rack travel in: 1250

rpm : 0.00...1.80Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 7.8

Testing:

Speed rpm : 100 Minimum rack trave: 9.30

Speed rpm : 250 Rack travel in mm : 7.70...7.90

Rack travel in mm : 2.00

Speed rpm : 295...335

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 600

Rack travel in m: 12.10...12.20

2nd speed rpm : 1035

Rack travel in m: 11.25...11.55

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1035 Del.quantity cm3/ : 129.5...135.5 1000 s: (126.5...138.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1085...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 180.0...200.0

1000 s: (176.0...204.0)

Remarks:

D22

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA

: 2.11.93 Edition Replaces : 21.09.92 Test oil : ISO-4113

Combination no. : 0 401 846 950

Injection pump

Pump designation : PE6P110A720RS3289 EP type number : 0 411 816 781

Governor

Governor design. RQV200...1100PA555-5

Governer no. : 0 421 813 943

Customer-spec. information Customer : SCANIA

Engine : DS11 63A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 104

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40

: (3.25...3.45)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 17.1...17.3

100 s: (16.9...17.5)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 325.0Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.9...2.5 100 s: (1.6...2.8)

Spread cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 0.70...1.10 travel mm rpm : 3502nd speed

travel mm : 2.00...2.60

3rd speed : 650 rpm

: 4.90...5.50 travel mm

4th speed : 1145 rpm

: 8.30...8.50 travel mm

5th speed : 1300 rpm

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1500 : 8.00 Spread cm3 1000 : (12.0)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 11.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1280...1310 Speed

4th rack travel in: 1420

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

rpm : 100 Speed Minimum rack trave: 8.20 Speed rpm : 325

Rack travel in mm : 6.50...6.70

Rack travel in mm : 2.00

: 400...460 Speed rpm

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1500

: 12.30...12.40 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.20

2nd pressure hPa : 200

Rack travel in m: 11.70...11.80

3rd pressure hPa : 140

Rack travel in m: 10.65...10.95

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 1100 Speed

Del.quantity cm3/: 160.0...168.0

1000 s: (158.0...170.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 112.0...116.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 240.0...290.0 Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 325

Rack travel in mm : 6.50...6.70

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : UNI 13,8 j Edition : 11.6.94 Replaces : 29.11.91 Test oil : ISO-4113 Scarbination no. : 0 401 846 959 Injection pump Pump designation: PE6P120A720RS3293 EP type number : 0 411 826 801 Governor Governor design. -6 Governer no. : 0 421 813 971 Customer-spec. information Customer : IVECO-UNIC Engine : 8215.22.400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0.8 Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values

: RQV225...1000PA1016 Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 21.7...21.9 100 s: (21.4...22.2) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 375.0 Rack travel in mm: 7.2...7.4 Del.quantity cm3/ : 2.5...3.1 100 s: (2.2...3.4) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1045 travel mm : 7.80...8.00 2nd speed rpm : 225 travel mm : 0.60...1.00 3rd speed rpm : 700 travel mm : 3.80...4.40 : 1300 4th speed rpm travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1110 Speed Rack travel in mm : 11.90...14.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 700 Del.quantity : 217.0...219.0 1000 : (214.0...222.0)

Prestroke mm

Spread

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 101...109

Testina:

1st rack travel in: 13.60

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1130...1160 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 75...83

Testing:

Speed rpm : 300

Minimum rack trave: 9.50

Speed rpm : 375 Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

Speed rpm : 380...500

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 700 Pressure

Rack travel mm : 14,60...14.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.90...12.10

2nd pressure hPa : 260 Rack travel in m: 13.40...13.50

3rd pressure hPa : 200

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700 Del.quantity cm3/ : 219.0...225.0 1000 s: (216.0...228.0)

Aneroid pressure h: -

Speed : 500 rom

Del.quantity cm3/: 154.0...156.0

1000 s: (151.0...159.0)

Spread cm3 : -

1000 s: (8.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 245.0...275.0 1000 s: (241.0...279.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

D26

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF : 11.6.94 Edition : 27.11.92 Replaces

Test oil

: ISO-4113

combination no.

: 0 401 846 964

Injection pump

Pump designation : PE6P110A320RS3302 EP type number : 0 411 816 787

Governor

Governor design. : RQ300/1000PA1012-1

Governer no. : 0 421 801 648

Customer-spec. information Customer : DAF

Engine : LT 195 L

: 195.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10 & maximum rack tra: 13.9...14.9 Difference ° CS : 3.00...5.00

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 17.3...17.5

100 s: (17.0...17.7)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.6...7.8 Del.quantity cm3/ : 2.7...3.2 100 s: (2.5...3.5)

cm3 : 0.8Spread

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 1000

: 173.0...175.0 Del.quantity

1000 : (170.5...177.5)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.45 Speed rpm : 1044...1060 2nd rack travel in: 4.00

Speed rpm : 1115...1145 4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.7

Testing:

Speed rpm : 200 Minimum rack trave: 11.00 Speed rpm : 300 Rack travel in mm : 7.60...7.80

Rack travel in mm : 2.50 : 350...390 Speed rpm

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 15.10...15.20 od speed rpm : 1000

2nd speed rpm

Rack travel in m: 15.00...15.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed man hPa : 1000 Pressure

Rack travel mm : 14.50...14.60

Measurement

1/min: 600 Speed

1st pressure hPa : 530

Rack travel in m: 14.00...14.10

2nd pressure hPa : 380

Rack travel in m: 13.00...13.20

3rd pressure hPa : -

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 131.0...133.0 1000 s: (128.5...135.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.45

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...370.0 1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.60...7.80

Del.quantity cm3/: 27.5...32.5 1000 s: (25.0...35.0)

cm3 : 8.00 Spread

1000 s: (11.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF : 11.6.94 : 2.12.93 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 846 971 Injection pump Pump designation : PE6P110A320RS3302Z EP type number : 0 411 816 789 Governor Governor design. : RQ300/1000PA1012-1 Governer no. : 0 421 801 648 Customer-spec. information Customer : DAF Engine : LS 195 M 1st version kW : 195.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valva : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Lenath mm : 8.00x2.50x600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-Firing order Phasina 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 3.90...4.10 & maximum rack tra: 13.5...14.5 Difference ° CS : 3.00...5.00 BASIC SETTING 1st speed rpm: 850 Rack trayel in mm : 13.90...14.00 Del.guantity cm3/: 16.5...16.7 100 s: (16.2...16.9) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 300.0Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5) cm3 : 0.8Spread 100 s: 1.10) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 1000 : 165.0...167.0 Del.quantity 1000 : (162.5...169.5) : 4.00 Spread cm3 1000 : (7.50) RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.95

Speed rpm : 1044...1060

2nd rack travel in: 4.00

Speed rpm : 1110...1140

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 6.5

Testing:

Speed rpm : 200 Minimum rack trave: 11.00 Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.90...14.00

2nd speed rpm : 1000

Rack travel in m: 13.85...14.05

Ameroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 Pressure hPa : 1000

Rack travel mm : 13.90...14.00

Measurement

Speed 1/min: 600

1st pressure hPa : 480

Rack travel in m: 13.50...13.60

2nd pressure hPa : 340

Rack travel in m: 12.50...12.70

3rd pressure hPa : -

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: -

Speed

rpm : 600

Del.quantity cm3/: 125.0...127.0

1000 s: (122.5...129.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.95

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 14.00...15.00 Note remarks Firing order : 1-5-3-6-2-Test sheet : DAF : 11.6.94 Edition Replaces Test oil : ISO-4113 Phasina Combination no. : 0 401 846 972 0-60-120-180-240-300 Injection pump Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Pump designation : PE6P110A320RS3302Y EP type number : 0 411 816 790 BASIC SETTING Governor Governor design. : RQ300/1000PA1012-1 1st speed rpm : 850 : 0 421 801 648 Governer no. Rack travel in mm : 13.00...13.10 Customer-spec. information Customer : DAF Del.quantity cm3/: 14.1...14.3 Engine : LT 160 L 100 s: (13.8...14.5) 1st version kW : 160.0 cm3 : 0.4Spread Rated speed : 2000 100 s: (0.7) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Rack travel in mm : 7.3...7.7 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: 1.10) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 101 assembly Speed rpm : 600 Rack travel in mm : 19.20...20.80 Openina (: 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter m. : 0,6 Speed rpm : 850 Aneroid pressure h: 1000 : 141.0...143.0 Del.quantity 1000 : (138.5...145.5) Test lines : 1 680 750 089 Spread cm3 : 4.00 Outside diameter 1000 : (7.50) x Wall thickness : 8.00X2.50X600 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ : 600 rpm Rack travel in mm: 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testina:

1st rack travel in: 12.05

rpm : 1044...1060 Speed 2nd rack travel in: 4.00

rom : 1105...1135 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.5

Testing:

Speed rpm : 200 Minimum rack trave: 11.00 rpm : 300 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.50 Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.00...13.10 2nd speed rpm : 1000 Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 600 Pressure

hPa : 1000 mm : 13.00...13.10 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 360

Rack travel in m: 12.70...12.80

2nd pressure hPa : 270

Rack travel in m: 12.00...12.20

3rd pressure hPa : -

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 108.5...110.5

1000 s: (106.0...113.0)

BREAKAWAY

1st version

E04

1mm rack travel less than

full load rack tr: 12.05

rpm : 1044...1060 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF Edition : 11.6.94 : 3.12.93 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 982 Injection pump Pump designation : PE6P11DA320RS3302X EP type number : 0 411 816 794 Governor Governor design. : RQ300/1000PA1012-1 Governer no. : 0 421 801 648 Customer-spec. information Customer : DAF Engine : LS 160 M 1st version kW : 150.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 3.90...4.10 & maximum rack tra: 12.5...13.5 Difference ° CS : 3.00...5.00 BASIC SETTING 1st speed rpm: 850 Rack travel in mn: 13.95...14.15 Del.quantity cm3/: 14.4...14.6 100 s: (14.1...14.8) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 300.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/ : 2.7...3.2 100 s: (2.5...3.5) cm3 : 0.5Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 850 Speed Aneroid pressure h: 1000 : 144.0...146.0 Del.quantity 1000 : (141.5...148.5) Spread cm3 : 4.00 1000 : (7.50) RATED SPEED

1st version

E05

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Setting point:

: 600 Speed rpm Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.05

rpm : 1044...1060 Speed

2nd rack travel in: 4.00

rpm : 1105...1135 Speed

4th rack travel in: 1250

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testing:

Speed : 200 rpm Minimum rack trave: 11.00 Speed : 300 rpm

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed : 345...385 rom

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rom : 850

Rack travel in m: 13.00...13.10

rpm : 1000 2nd speed

Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 850 hPa : 1000 Pressure

Rack travel mm : 13.00...13.10

Measurement

Speed 1/min: 600

1st pressure hPa : 310

Rack travel in m: 12.60...12.70 2nd pressure hPa : 220 Rack travel in m: 11.90...12.10

3rd pressure hPa : -

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rom : 600 Del.quantity cm3/: 110.5...112.5 1000 s: (108.0...115.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.05

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 08.06.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 755 Phasing Injection pump Pump designation : PES6P120A720/3LS3255 EP type number : 0 412 026 768 Governor Governor design. : RQ300/1000PA813-23 Governer no. : 0 421 801 710 1st speed Customer-spec. information Customer : MAN Engine : D2866LU08 : 230.0 1st version kW Rated speed : 2000 Spread TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 2nd speed Overflow valve : 1 417 413 025 Spread Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening Speed pressure, bar : 207...210 Orifice plate diameter mm : 0,8 1st version Speed Test lines : 1 680 750 075 Del.quantity Outside diameter x Wall thickness Spread x Length mm : 8.00x2.50x1000 (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values BEGINNING OF DELIVERY

Test pressure, bar: 30...32 Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.50...15.50 Firing order : 6-2-4-1-5-0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75)Time to cyl. no. : 6 BASIC SETTING rpm : 700 Rack travel in mm : 13.85...13.95 Del.quantity cm3/: 20.4...20.6 100 s: (20.1...20.9) cm3 : 0.5100 s: (2.9) rpm : 300.0 Rack travel in mm: 6.1...6.5 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 550 Rack travel in mm : 14.70...16.30 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 700 Aneroid pressure h: 1200 204.0...206.0 1000 : (201.0...209.0) cm3 : 5.00 1000 : (9.00) Setting point: Speed rpm : 750

Rack travel in mm: 15.5

Testina:

1st rack travel in: 12.90

rpm : 1045...1061 Speed

2nd rack travel in: 4.00

Speed rpm : 1135...1165 4th rack travel in: 1260

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.3

Testing:

Speed : 200 rpm Minimum rack trave: 9.80

rpm : 300 Speed

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00 Speed rom : 360...400

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 man hPa : 1200 Pressure

Rack travel mm : 13.85...13.95

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.20...11.50

2nd pressure hPa : 110

Rack travel in m: 11.60...11.70

3rd pressure hPa : 450

Rack travel in m: 13.15...13.45

START CUT-OUT

Speed 1/min: 220 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 1000 rpm

Del.quantity cm3/: 209.0...215.0

1000 s: 206.0...218.00)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 119.0...121.0

1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 1045...1061 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

: MANYNR. 3-7336

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV Edition : 26.5.94 Replaces : 15.06.93 Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump

Pump designation : PES6P100A320LS3309 EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-4K

Governer no. : 0 421 815 328

Customer—spec. information Customer : NAVISTAR

Engine : DTA-408

1st version kW : 171.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05

: (2.90...3.10)
Rack travel in mm : 14.00...17.00
Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.4...1.8

100 s: (1.2...2.1) Spread cm3 : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel mm : 1.60...2.00

2nd speed rpm : 500 travel mm : 3.80...4.20

3rd speed rpm: 800

travel mm : 5.80. 6.20

4th speed rpm : 1300

travel mm : 8.90...9.10 5th speed rpm : 1500

travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900 Aneroid pressure h: 1200

E09

Del.quantity : 344.5...148.5) : 8.00 Spread cm3 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 11.90 nom : 1340...1370 Speed 2nd rack travel in: 4.00 Speed rpm : 1510...1520 4th rack travel in: 1650 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...80 Testing: Speed rpm : 275 Minimum rack trave: 6.50 Speed rpm : 350 Rack travel in mm : 5.30...5.50 CONSTANT REGULATION Speed rpm : 355...525 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 12.50...12.60 and speed rpm : 1300 Rack travel in m: 12.80...13.00 2nd speed 3rd speed rpm : 700 Rack travel in m: 11.80...12.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1300 rpm hPa : 1200 Pressure Rack travel mm : 12.80...13.00 Measurement 1/min: 1300 Speed 1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 300 Rack travel in m: 9.50...9.60

Rack travel in m: 11.70...12.10 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1300 Del.quantity cm3/: 151.5...155.5 1000 s: (149.5...157.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 900 Del.quantity cm3/: 65.0...69.0 1000 s: (63.0...71.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1340...1370 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm: 20.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 14.5...18.5 1000 s: (12.0...21.0) cm3 : 4.00Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819917091 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

3rd pressure hPa : 890

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : NAV : 14.10.93 Edition : 08.93 Replaces Test oil : ISO-4113 Combination no. : C 402 046 846 Injection pump Pump designation : PES6P100A320LS3309 : 0 412 006 704 EP type number Governor : RQV350...1300PA1042 Governor design. -7K : 0 421 815 331 Governer no. Customer-spec information Customer : NAVISTAR Engine : DTA-408 1st version kW : 130.5 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 058 Inlet press., bar: 2.80 Overflow quantity min. 1/h: 240...260 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Outside diameter x Wall thickness

: 6.00x1.50x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 2.95...3.05 Prestroke mm : (2.90...3.10) Rack travel in mm : 14.00...17.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 900 Rack travel in mm : 11.00...11.10 Del.quantity cm3/ : 10.0...10.2 100 s: (9.8...10.4) cm3 : 0.8Spread 100 s: (1.2) 2nd speed rpm : 350.0 Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.4...1.8 100 s: (1.2...2.1) Spread cm3 : 0.4100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 350 1st speed : 1.60...2.00 travel mm rpm : 500 : 3.80...4.20 2nd speed travel mm 3rd speed rpm : 800 travel mm : 5.80...6.20 rpm : 1300 4th speed : 8.90...9.10 travel mm rpm : 1500 5th speed : 10.40...10.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1500 Rack travel in mm : 7.00...13.00

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

x Length mm

per values

FULL LOAD DELIV. AT FULL LOAD STOP 1st pressure hPa : -Rack travel in m: 8.80...9.20 1st version 2nd pressure hPa : 270 Rack travel in m: 9.80...9.90

3rd pressure hPa : 580

Rack travel in m: 11.10...11.50 Speed rpm : 900 Aneroid pressure h: 1200 : 100.0...102.0 1000 : (98.0...104.0) Del.quantity cm3 : 8.00 1000 : (12.00) Spread START CUT-OUT 1/min: 280 (290) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 116...124 1st version Aneroid pressure h: 1200 Speed rpm : 1300 Del.quantity cm3/ : 122.0...126.0 1000 s: (120.0...128.0) Testing: 1st rack travel in: 10.70 rpm : 1360...1390 Speed 2nd rack travel in: 4.00 cm3 : 8.00Spread Speed rpm : 1500...1510 4th rack travel in: 1650 1000 s: (12.0) Aneroid pressure h: rpm : 900 Speed rpm : 0.00...1.00Speed Del.quantity cm3/: 69.0...73.0 LOW IDLE 1 1000 s: (67.0...75.0) Control lever position degrees: 71...79 BREAKAWAY Testing: Speed 1st version i pra Minimum rack trave: 6.20 1mm rack travel less than Speed : 350 rpm Rack travel in mm : 5.10...5.30 full load rack tr: 10.70 Speed rpm : 1360...1390 CONSTANT REGULATION Speed rpm : 350...520 STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm :? Speed : 100 rpm Del.quantity cm3/: 120.0...160.0 Torque control curve - 1st version rpm : 900 1000 s: (115.0...165.0) 1st speed Rack travel in m: 11.00...11.10 Rack travel in mm : 20.00...21.00 2nd speed rpm : 1300 Rack travel in m: 11.70...11.90 LOW IDLE 3rd speed rpm : 700 Rack travel in m: 10.30...10.70 Speed rpm : 350 Rack travel in mm : 5.10...5.30 Aneroid/Altitude Del.quantity cm3/: 14.5...18.5 Compensator Test 1000 s: (12.0...21.0) Spread cm3 : 4.001000 s: (6.50) 1st version Setting Remarks: Speed : 1300 rpm : NAVISTAR Pressure hPa : 1200 #1819923091 : 11.70...11.90 Rack travel mm Bow dimension: Measurement Sliding-sleeve position = 37.0 mm1/min: 1300 Speed Setting and blocking of pointer of

E12

start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV Edition : 26.5.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 046 848

Injection pump

Pump designation : PES6P100A320LS3325

EP type number : 0 412 006 709

Governor

Governor design. : RQV350...1200PA1042

-8K

Governer no. : 0 421 815 346

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

1st version kW : 205.5 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05

: (2.90...3.10) Rack travel in mm : 14.00...17.00

Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 15.20...15.30

Del.quaratity cm3/: 17.4...17.6

100 s: (17.2...17.8)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm : 6.9...7.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 500

travel mm : 3.50...3.90

3rd speed rpm: 800

travel mm : 6.20...6.60

4th speed rpm: 1250

travel mm : 9.30...9.50

5th speed rpm: 1400

travel mm : 10.50...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 800 Aneroid pressure h: 1200

E14

: 174.5...176.5 1000 : (172.5...178.5) Del.quantity Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 115...127 Testing: 1st rack travel in: 14.60 **rpm** : 1240...1275 Speed 2nd rack travel in: 4.00 rpm : 1450...1460 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 70...82 Testina: Speed : 275 rpm Minimum rack trave: 8.60 : 350 rpm Rack travel in mm : 6.90...7.10 CONSTANT REGULATION rpm : 350...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 800 1st speed Rack travel in m: 15.20...15.30 and speed rpm : 1200 Rack travel in m: 15.60...15.80 2nd speed 3rd speed **rpm** : 450 Rack travel in m: 13.00...13.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1200 COM hPa : 1200 mm : 15.60...15.80 Pressure Rack travel mm Measurement 1/min: 1200 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.50 2nd pressure hPa : 405

Rack travel in m: 12.00...12.10 3rd pressure hPa : 815

Rack travel in m: 14.00...14.40 START CUT-OUT Speed 1/min: 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 1200 rpm Del.quantity cm3/: 182.0...186.0 1000 s: (180.0...188.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/ : 69.0...71.0 1000 s: (66.0...74.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.60 rpm : 1240...1275 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...160.0 1000 s: (115.0...165.G) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 4.00Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819924c91 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.80...4.90 Prestroke mm : (4.75...4.95) Rack travel in mm : 19.00...21.00 Firing order : 1-5-3-6-2-4 Note remarks : DAF Test sheet Edition : 11.6.94 Replaces Test oil : ISO-4113 Phasing 0-60-120-180-240-300 Combination no. : 0 402 046 856 Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Injection pump Pump designation : PE6P110A320RS3329Z Time to cyl. no. : 6 EP type number : 0 412 016 744 Governor BASIC SETTING Governor design. : RQV325...1300PA1119 : 0 421 814 083 Governer no. rpm: 1000 1st speed Customer-spec. information Rack travel in mm : 11.80...11.90 : DAF Customer Del.quantity cm3/: 14.5...14.7 Engine : NS133M 100 s: (14.2...15.0) 1st version kW : 133.0 : 2600 Rated speed cm3 : 0.4Spread 100 s: (0.7) TEST BENCH REQUIREMENTS Test oil rpm : 325.0 2nd speed inlet temp. °C Rack travel in mm : 5.1...5.3 : 38...42 Del.quantity cm3/ : 2.3...2.8 Overflow valve 100 s: (2.1...3.1) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-Lever position assembly : 1 688 901 101 Degree: -1 rpm : 1450 Speed Opening Rack travel in mm : 9.50...12.10 : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,6 1st version rpm : 1000 Speed Aneroid pressure h: 1000 : 145.0...147.0 Test lines : 1 680 750 008 Del.quantity : (142.0...150.0) 1000 Outside diameter : 4.00 Spread cm3 x Wall thickness 1000 : (7.50) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values _ position degrees: 118...126 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.85 rpm : 1337...1347 Speed

2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1600 Speed rpm : 0.03...1.00 LOW IDLE 1 Control lever position degrees: 79...87 Testing: Speed : 225 rpm Minimum rack trave: 8.80 Speed rpm : 325 Rack travel in mm : 4.40...4.60 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.80...11.90 2nd speed rpm : 700 Rack travel in m: 11.80...11.90 3rd speed rpm : 1300 Rack travel in m: 11.80...11.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 1000 Rack travel mm : 11.80...11.90 Measurement Speed 1/min: 600 1st pressure hPa : 310 Rack travel in m: 10.50...10.60 2nd pressure hPa : 130 Rack travel in m: 7.75...7.95 3rd pressure hPa : -Rack travel in m: 6.50...6.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/ : 143.0...147.0 1000 s: (140.0...150.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 87.0...89.0 1000 s: (84.5...91.5)

1st version 1mm rack travel less than

full load rack tr: 10.85 Speed rpm : 1337...1347

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 6.50...6.70

Remarks:

BREAKAWAY

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.80...4.90 Prestroke mm : (4.75...4.95) Note remarks Rack travel in mm : 19.00...21.00 Firing order : 1-5-3-6-2-4 Test sheet : DAF : 11.6.94 Edition Replaces Test oil : ISO-4113 Phasing 0-60-120-180-240-300 Combination no. : 0 402 046 861 Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Injection pump Pump designation : PE6P110A320RS3329 Time to cyl. no. : 6 EP type number : 0 412 016 743 Governor BASIC SETTING Governor design. : RQ325/1300PA1150 : 0 421 801 716 Governer no. 1st speed rpm : 1000Customer-spec. information Rack travel in mm : 11.80...11.90 Customer : DAF Del.quantity cm3/: 14.3...14.5 Engine : NS156M 100 s: (14.0...14.8) 1st version kW : 156.0 Rated speed : 2600 cm3 : 0.4Spread TEST BENCH REQUIREMENTS 100 s: (0.7) Test oil rpm : 325.02nd speed inlet temp. °C : 38...42 Rack travel in mm: 5.1...5.3 Del.quantity cm3/: 2.3...2.8 Overflow valve 100 s: (2.1...3.1) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 101 assembly Degree: -2 rpm : 650 Speed **Opening** Rack travel in mm : 19.20...20.80 pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,6 1st version Speed rpm : 1000 Aneroid pressure h: 1000 Test lines ± 1 680 750 008 : 143.0...145.0 Del.quantity 1000 : (140.0,...148.0) Outside diameter : 4.00 Spread cm3 x Wall thickness 1000 : (7.50) : 6.00x2.00x600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. per values ____ Setting point: rpm : 650 BEGINNING OF DELIVERY Rack travel in mm: 20.0

Testing:

Test pressure, bar: 25...27

1st rack travel in: 10.85 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1435...1465 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.50 Testing: rpm : 225 Speed Minimum rack trave: 5.90 Speed rpm : 325 Rack travel in mm : 4.40...4.60 Rack travel in mm : 2.00 Speed rpm : 415 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.80...11.90 2nd speed rpm : 700 Rack travel in m: 11.80...11.90 3rd speed rpm : 1300 Rack travel in m: 11.80...11.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed Pressure hPa : 1000 Rack travel mm : 11.80...11.90 Measurement 1/min: 600 Speed 1st pressure hPa : 370 Rack travel in m: 10.70...10.80 2nd pressure hPa : 200 Rack travel in m: 8.45...8.65 3rd pressure hPa : -Rack travel in m: 7.05...7.25 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 143.0...147.0

1000 s: (140.0...150.0)

: 600

Del.quantity cm3/ : 97.5...99.5 1000 s: (95.0...102.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.85 Speed rpm : 1340...1350

Remarks:

E19

Speed

Aneroid pressure h: -

rpm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : STE Edition : 11.6.94 Replaces : 13.12.93 Test oil : ISO-4113 Combination no. : 0 402 638 807 Injection pump Pump designation : PE8P120A120LS7127 EP type number : 0 412 628 817 Governor Governor design. : RQ300/1100PA134-3 Governer no. : 0 421 801 655 Customer-spec. information Customer : SNF : WD 815.72/73 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1- 5- 4- 8- 6-7- 2 Firing order Phasing 0-45-90-135-180-225 270-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 500 Rack travel in mm : 14.50...14.60 Del.quantity cm3/: 14.2...14.4 100 s: (13.9...14.7) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 300.0Rack travel in mm : 6.3...6.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 15.40...16.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 500 Aneroid pressure h: 1500 Del.quantity : 235.0...241.0 1000 : (232.0...244.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm : 16.0 Testing: 1st rack travel in: 13.30 Speed rpm : 1145...1161

E20

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300

Rack travel in mm: 6.6

Testing:

Speed rpm : 200 Minimum rack trave: 8.00 : 300 rpm

Rack travel in mm : 6.50...6.70

Rack travel in mm: 2.00 nom : 400...440 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed

st speed rpm : 1100 Rack travel in m: 14.40...14.70

rpm : 500 2nd speed

Rack travel in m: 14.40...14.70

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed hPa : 1500 Pressure

Rack travel mm : 14.40...14.70

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20 2nd pressure hPa : 790 Rack travel in m: 13.20...13.30 3rd pressure hPa : 490

Rack travel in m: 11.15...11.35

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 1100
Del.quantity cm3/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm3 : 12.00

1000 s: (15.0)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0)

Spread

cm3 : 5.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30

rpm : 1145...1161 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 180.0...210.0 1000 s: (176.0...214.0)

Rack travel in mm : 15.50...16.50

Remarks:

Delivery-valve spring pre-tension $3.2...3.4 \, \text{mm}$.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

E21

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 firing order : 1- 5- 4- 8- 6-Note remarks 7- 2 Test sheet : STE Edition : 11.6.94 Replaces : 13.12.93 Test oil : ISO-4113 Phasing 0-45-90-135-180-225-Combination no. : 0 402 638 808 270-315 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PE8P120A120LS7127 Time to cyl. no. : 1 EP type number : 0 412 628 817 Governor BASIC SETTING Governor design. : RQV300...1100PA785-3 1st speed rpm : 500 : 0 421 814 004 Governer no. Rack travel in mm : 14.50...14.60 Customer-spec. information Customer Del.quantity cm3/: 14.2...14.4 Engine : WD 815.72/73 100 s: (13.9...14.7) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 2nd speed rpm : 250.0 Overflow valve Rack travel in mm: 6.3...6.9 : 1 417 413 025 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Inlet press., bar: 1.50 cm3 : 0.8 Spread 100 s: (1.2) Test nozzle holder : 1 688 901 105 assembly (B) Setting of injection pump with governor Opening. : 207...210 pressure, bar GUIDE SLEEVE TRAVEL 1st speed rom : 250 Orifice plate : 0.95...1.35 travel mm diameter mm : 0,8 2nd speed rpm : 355 : 1.70...2.20 travel mm 3rd speed rpm : 410 Test lines : 1 680 750 089 travel mm : 2.20...2.70 : 1150 4th speed rpm Outside diameter travel mm : 8.35...8.65 x Wall thickness : 1390 5th speed rpm x Length mm : 8.00x2.50x600 travel mm : 11.00...12.00 (A) Injection pump setting values GUIDE SLEEVE POSITION Insp. values in parentheses Control-lever position Set equal delivery quant. Degree: -1 per values rpm : 1220 Rack travel in mm : 11.50...14.10 BEGINNING OF DELIVERY Test pressure, bar: 25...27 FULL LOAD DELIV. AT FULL LOAD STOP Prestroke mm : 5.00...5.10 1st version : (4.95...5.15) Speed rpm : 500

Aneroid pressure h: 1500 Del.quantity : 255.0...244.0) cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 103...111 Testina: 1st rack travel in: 13.40 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 70...78 Testing: Speed : 150 rom Minimum rack trave: 8.60 Speed rpm : 250 Rack travel in mm : 6.50...6.70 TORQUE CONTROL Dimension a man Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.40...14.70 2nd speed rpm : 500 Rack travel in m: 14.40...14.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : 1500 Rack travel mm : 14.40...14.70 Measurement Speed $1/\min : 500$

1st pressure hPa : -Rack travel in m: 10.10...10.20

Rack travel in m: 13.20...13.30

Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

2nd pressure hPa : 790

3rd pressure hPa : 520

1st version Aneroid pressure h: 1500 Speed rpm : 1100 Del.quantity cm3/ : 212.0...216.0 1000 s: (209.0...219.0) cm3 : 12.00 Spread 1000 s: (15.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 142.0...144.0 1000 s: (139.0...147.0) Spread cm3 : 5.00 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 180.0...210.0 1000 s: (176.0...214.0) Rack travel in mm : 15.50...16.50 Remarks: Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 13.6.94 : 14.12.93 Replaces Test oil : ISO-4113

: 0 402 646 612 Combination no.

Injection pump

Pump designation: PE6P12OA32ORS7248

-10x

EP type number : 0 412 626 907

Governor

Governor design. : RQ275/1150PA987 : 0 421 801 578 Governer no.

Customer-spec. information Customer : DAF

Engine : RS 200 M

1st version kW : 200.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00X2.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 550 Speed

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000Aneroid pressure h: 1000

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 550 Speed Rack travel in mm: 15.8

Testing:

1st rack travel in: 10.75 Speed rpm : 1184...1200 2nd rack travel in: 4.00

rpm : 1255...1285 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275

Rack travel in mm: 4.9

Testina:

: 175 Speed rpm

Minimum rack trave: 7.00 Speed

rpm : 275

Rack travel in mm : 4.80...5.00

Rack travel in mm: 2.00

Speed rpm : 320...360

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1000

Rack travel mm : 11.70...11.80

Measurement

1/min: 600 Speed

1st pressure hPa : 340

Rack travel in m: 11.20...11.30

2nd pressure hPa : 200

Rack travel in m: 10.10...10.30

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/: 120.5...122.5

1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.75

rpm : 1184...1200 Speed

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : DAF : 13.6.94 Edition Replaces : 15.12.93 Test oil : ISO-4113

Combination no. : 0 402 646 613

Injection pump

Pump designation : PE6P120A320RS7248

-10W

EP type number : 0 412 626 908

Governor

Governor design. : RQ275/1150PA987 Governer no. : 0 421 801 578

Customer-spec. information Customer : DAF

Engine : RS 180 M

: 180.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 15.3...15.5

100 s: (15.0...15.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 5.3...5.5

Del.quantity cm3/: 1.3...1.9 100 s: (1.0...2.2)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 550 Rack travel in mm: 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

Del.quantity : 153.0...155.0 1000 : (150.0...158.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 550 rpm Rack travel in mm: 15.8

Testing:

1st rack travel in: 9.75

Speed rpm : 1184...1200

2nd rack travel in: 4.00

Speed rpm : 1250...1280

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 4.9

Testing:

Speed rpm : 175 Minimum rack trave: 7.00

Rack travel in mm : 2.00 rpm : 320...360 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 10.70...10.80

2nd speed rpm : 1150

Rack travel in m: 10.65...10.85

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

: 10.70...10.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 300 Rack travel in m: 10.40...10.50 2nd pressure hPa : 240

Rack travel in m: 9.90...10.10

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 121.5...123.5

1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.75

rpm : 1184...1200 Speed

Remarks:

E27

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 13.6.94 Replaces : 15.12.93 Test oil : ISO-4113

: 0 402 646 614 Combination no.

Injection pump

Pump designation : PE6P120A320RS7248

-10W

EP type number

: 0 412 626 908

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer-spec. information Customer : DAF

Engine : RS 180 M

1st version kW : 180.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 15.3...15.5

100 s: (15.0...15.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 5.2...5.6 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275 travel mm : 1.19...1.69

2nd speed rpm : 365

: 2.27...2.77 travel mm

3rd speed rpm : 450 : 2.82...3.32 rpm : 799 travel mm

4th speed travel mm : 4.96...5.46

rpm : 1206 5th speed travel mm : 7.99...8.49

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1350 Speed Rack travel in mm : 8.40...11.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1000 : 153.0...155.0 Del.quantity 1000 : (150.0...158.0) cm3 : 5.00Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 114...122 Testing: 1st rack travel in: 9.75 rpm : 1187...1197 Speed 2nd rack travel in: 4.00 rpm : 1275...1305 Speed 4th rack travel in: 1450 rpm : 0.00...1.40Speed LOW IDLE 1 Control lever position degrees: 78...86 Testing: Speed rpm : 175 Minimum rack trave: 7.40 rpm : 275 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION Speed rpm : 315...365 TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.70...10.80 rpm : 1150 2nd speed Rack travel in m: 10.65...10.85 Aneroid/Altitude Compensator Test 1st version

Speed 1/min : 600 1st pressure hPa : 300 Rack travel in m: 10.40...10.50 2nd pressure hPa : 240 Rack travel in m: 9.90...10.10 3rd pressure hPa : -Rack travel in m: 9.40...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Ameroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 121.5...123.5 1000 s: (118.5...126.5) BREAKAWAY 1st version 1mm rack travel less than full load rack in: 9.75 rpm : 1187...1197 Speed Remarks: :

Measurement

MCC

Rack travel mm : 10.70...10.80

: 600 hPa : 1000

Setting Speed

Pressure

F01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
Edition : 13.6.94
Replaces : 14.12.93
Test oil : ISO-4113

Combination no. : 0 402 646 615

Injection pump

Pump designation : PE6P120A320RS7248

-10x

EP type number : 0 412 626 907

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer—spec. information Customer : DAF

Engine : RS 200 M

1st version kW : 200.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack tray. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.8 100 s: (1.2)

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.19...1.69

2nd speed rpm: 365

travel mm : 2.27...2.77

3rd speed rpm : 450

travel mm : 2.82...3.32

4th speed rpm: 799

travel mm : 4.96...5.46

5th speed rpm: 1206

travel mm : 7.99...8.49

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1335 Speed

Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 171.0...173.0

1000 : (168.0...176.0)

cm3 : 5.00Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 10.75

rpm : 1187...1197 Speed

2nd rack travel in: 4.00

rpm : 1290...1320 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

Speed rpm : 175 Minimum rack trave: 7.40 rpm : 275

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 315...421

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.70...11.80

2nd speed rpm : 1150

Rack travel in m: 11.65...11.85

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 600 Speed Pressure hPa : 1000

Rack travel mm : 11.70...11.80

Measurement

F03

Speed 1/min: 600

1st pressure hPa : 340 Rack travel in m: 11.20...11.30 2nd pressure hPa : 200

Rack travel in m: 10.10...10.30

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 600

Del.quantity cm3/: 120.5...122.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.75

Speed rpm : 1187...1197

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : TAT Edition : 13.6.94 Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 616

Injection pump

Pump designation : PE6P120A320LS7278 EP type number : 0 412 626 880

Governor

Governor design. : RQV325...100PA1058

Governer no. : 0 421 814 047

Customer-spec. information Customer : TAT

Engine : M640s

1st version kW : 242.0 Rated speed : 200C

TEST BENCH REQUIREMENTS ..

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 23.2...23.4

100 s: (22.9...23.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0Rack travel in mm: 4.8...5.4 Del.quantity cm3/ : 2.1...2.7

100 s: (1.8...3.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 325

: 1.30...1.80 travel mm 2nd speed : 404

rpm

travel mm : 2.16...2.66 3rd speed : 500 rpm

travel mm

: 3.10...3.50 : 764 4th speed rpm

travel mm

: 5.52...6.02

rpm : 1056 5th speed

travel mm : 8.41...8.81

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100 Speed

Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1500

Del.quantity : 232.0...237.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 12.45 Speed rpm : 1040...1050

2nd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

Speed rpm : 0.06...1.40

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

rpm : 225 Speed Minimum rack trave: 6.70

Speed rpm : 325 Rack travel in mm : 4.80...5.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 man Pressure hPa : 1500

: 13.40...13.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 1000

Rack travel in m: 12.95...13.05

3rd pressure hPa : 520

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 141.0...145.0

1050 9: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.45

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 290.0...336.0 1000 s: (286.0...334.0)

Remarks:

F05

BOSCH INJ. PUMP TEST SPECIFICATIONS : 5.50...5.60 : (5.45...5.65) Prestroke mm Rack travel in mm : 20.00...21.00 Note remarks Firing order : 8-7-2-6-3-Test sheet : MB : 7.6.94 Edition : 05.94 Replaces : ISO-4113 Test oil Combination no. : 0 402 648 928 Phasing 0-45-90-135-180-225 Injection pump 270-315 Pump designation : PE8P120A320LS7847-2 Tolerance + - ° : 0.30 (0.75) EP type number : 0 412 628 885 Governor Time to cyl. no. : 8 Governor design. : RQ300/1050PA1030-19 Governer no. : 0 421 801 748 BASIC SETTING Customer-spec. information 1st speed rom : 550 Customer : MERCEDES-BENZ Rack travel in mm : 14.75...14.85 Engine : 0M402 LA Del.quantity cm3/: 23.8...24.0 1st version kW : 280.0 Rated speed : 2100 100 s: (23.5...24.3) TEST BENCH REQUIREMENTS Spread cm3 : 0.6Test oil 100 s: (0.9) inlet temp. °C : 38...42 rpm : 300 2nd speed Rack travel in mm : 5.40...6.00 Del.quantity cm3/ : 1.0...1.6 Overflow valve : 1 417 413 025 100 s: (0.7...1.9) Inlet press., bar: 1.50 cm3 : 0.6Spread 100 s: (1.0) Test nozzle holder assembly : 1 688 901 105 FULL LOAD DELIV. AT FULL LOAD STOP Opening . 1st version pressure, bar : 207...210 Speed rpm : 550 Aneroid pressure h: 1200 Orifice plate : 238.0...240.0 Del.quantity 1000 : (235.0...243.0) diameter mm : 0,8 Spread cm3 : 6.00 1000 : (9.00)Test lines : 1 680 750 075 RATED SPEED Outside diameter x Wall thickness 1st version x Lenath mm : 8.00X2.50X1000 Setting point: (A) Injection pump setting values : 600 rpm Insp. values in parentheses Rack travel in mm: 20.0 Set equal delivery quant. per values Testing: 1st rack travel in: 13.00 BEGINNING OF DELIVERY rpm : 1090...1106 Speed Test pressure, bar: 25...27 2nd rack travel in: 4.00 rpm : 1175...1205 Speed

4th rack travel in: 1350 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 5.5 Testing: Speed rpm : 200 Minimum rack trave: 7.20 Speed : 300 rpm Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 Speed rpm : 400...440 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 550 Rack travel in m: 14.75...14.85 2nd speed rpm : 1050 Rack travel in m: 13.95...14.15 3rd speed rpm : 950 Rack travel in m: 14.10...14.30 4th speed rpm : 775 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 400 Speed! rpm Pressure hPa : 1200 : 14.75...14.85 Rack travel mm Measurement Speed 1/min: 400 1st pressure hPa : 450 Rack travel in m: 12.80...13.00 2nd pressure hPa : 300 Rack travel in m: 11.75...12.05 3rd pressure hPa : -Rack travel in m: 10.25...10.55 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1050 Speed Del.quantity cm3/: 210.0...214.0 1000 s: (207.0...217.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 450 Speed rpm

Del.quantity cm3/: 164.5...167.5 1000 s: (161.5...170.5) Aneroid pressure h: -Speed rpm: 400 Del.quantity cm3/: 104.0...106.0 1000 s: (101.0...109.0) Spread cm3: 8.00 1000 s: (12.0)

BREAKAWAY

Speed

1st version 1mm rack travel less than full load rack tr: 13.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

rpm : 1090...1106

Remarks:

F07

Note remarks

Test sheet : MB : 02.94 Edition : 10.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 933

Injection pump

Pump designation : PE8P12DA320LS7847 EP type number : 0 412 628 863

Governor

Governor design: RQ300/950PA1031-3 : 0 421 801 646 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M402 LA Engine

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-

4-1

Phasing

0-45-90-135-180-225-

270-315 : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

Tolerance + - °

1st speed rpm : 550

Rack travel in mm : 13.55...13.65

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm: 5.2...5.8 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.6100 s: (1.0)

GUIDE SLEEVE POSITION Control-Lever position

Degree: 108...110

rpm : 600 Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550 Aneroid pressure h: 1200 Del.quantity : 238.0...240.0

1000 : (235.0...243.0)

cm3 : 6.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control Lever position degrees: 93.0...101.0 Setting point: Speed rpm : 600 Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.00 rpm : 990...1006 Speed 2nd rack travel in: 4.00 Speed rpm : 1060...1090 4th rack travel in: 1350 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 69.0...77.0 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testina: Speed rpm : 200 Minimum rack trave: 7.90 Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 360...400 TORQUE CONTROL Dimension a mm : 0.55 Torque control curve - 1st version 1st speed rpm : 550 Rack travel in m: 13.55...13.65 2nd speed rpm : 950 Rack travel in m: 12.90...13.10 3rd speed rpm : 900 Rack travel in m: 13.15...13.25 4th speed rpm : 875 Rack travel in m: 13.20...13.40 5th speed rpm: 800 Rack travel in m: 13.55...13.65 Aneroid/Altitude Compensator Test 1st version Settina : 400 Speed rpm hPa : 1200 Pressure Rack travel mm : 13.55...13.65 Measurement 1/min: 400 Speed 1st pressure hPa : 450 Rack travel in m: 12.10...12.20 2nd pressure hPa : 300

Rack travel in m: 11.35...11.55 3rd pressure hPa : -Rack travel in m: 10.65...10.95 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 950 Speed Del.quantity cm3/: 212.0...216.0 1000 s: (209.0...219.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 450 Speed rpm : 400 Del.quantity cm3/: 160.5...163.5 1000 s: (157.5...166.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 107.0...109.0 1000 s: (104.0...112.0) Spread cm3 : 8.001000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 990...1006 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Remarks:

Note remarks

Test sheet

Edition : 17.03.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 933

Injection pump

Pump designation : PE8P120A320LS7847-3

EP type number : 0 412 628 886

Governor

Governor design. : RQ300/950PA1031-14

: 0 421 801 720 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M402 LA

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening 1

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order

: 8- 7- 2- 6- 3-

4-1

Phasing

0-45-90-135-180-225

270-315

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 14.75...14.85

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300 2nd speed

Rack travel in mm: 5.4...5.6

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.52...1.72

2nd speed : 443 rpm

: 4.25...4.45 travel mm

3rd speed : 550 man

5.9...6.1 travel mm

rpm : 1009 4th speed

travel mm : 6.74...6.94

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

Setting Speed 1st version rpm : 400 Speed rpm : 550 Pressure hPa : 1200 Aneroid pressure h: 1200 : 14.75...14.85 Rack travel mm Del.quantity : 238.0...240.0 1000 : (235.0...243.0) Measurement cm3 : 6.00 Spread 1/min: 400 Speed 1000 : (9.00) 1st pressure hPa : 450 Rack travel in m: 12.8...13.0 2nd pressure hPa : 300 RATED SPEED 1st version Rack travel in m: 11.75...12.05 Control lever 3rd pressure hPa : position degrees: 93.0...101.0 Rack travel in m: 10.25...10.55 Setting point: START CUT-OUT Speed npm : 600 Rack travel in mm: 20.0 1/min : 220 (240) Speed Testing: FUEL DELIVERY CHARACTERISTICS 1st rack travel in: 13.0 rpm : 990...1006 Speed 2nd rack travel in: 4.00 1st version rpm : 1060...1090 Speed Aneroid pressure h: 1200 4th rack travel in: 1350 Speed rpm : 0.00...1.50 Speed rpm : 950 Del.quantity cm3/ : 212.0...216.0 1000 s: (209.0...219.0) LOW IDLE 1 Spread cm3 : 8.00 Control lever 1000 s: (12.0) position degrees: 69.0...77.0 Aneroid pressure h: 450 Setting point w/out bumper spring rpm : 400 Del.quantity cm3/: 164.5...167.5 1000 s: (161.5...170.5) rpm : 300 Rack travel in mm: 5.5 Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 107.0...109.0 1000 s: (104.0...112.0) Testing: rpm : 200 Speed Minimum rack trave: 7.50 : 300 cm3 : 8.00 rpm Spread Rack travel in mm: 5.40...5.60 Rack travel in mm: 2.00 1000 s: (12.0) Speed rpm : 400...440 **BREAKAWAY** TORQUE CONTROL Torque control curve - 1st version 1st version 1st speed rpm : 550 1mm rack travel less than Rack travel in m: 14.75...14.85 2nd speed rpm : 950 full load rack tr: 13.0 Rack travel in m: 13.9...14.1 Speed rpm : 990...1006 3rd speed rpm : 900 Rack travel in m: 14.0...14.2 STARTING FUEL DELIVERY 4th speed rpm : 875 Rack travel in m: 14.15...14.35 5th speed rpm : 800 Rack travel in m: 14.65...14.85 Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 1st version Rack travel in mm : 5.4...5.6

F11

Del.quantity cm3/: 10.0...16.0 1000 s: (7.0...19.0) Spread cm3 : 6.00 1000 s: (10.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 8.6.94 Edition : 4.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 648 936 Injection pump Pump designation PE8P120A320LS7840-10 EP type number : 0 412 628 856 Governor Governor design. : RQ300/950PA1032-14 Governer no. : 0 421 801 749 Customer-spec, information : MERCEDES-BENZ . Customer Engine : 0M442 A 1st version kW : 250.0 : 1900 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075

: 5.20...5.30 Prestroke mm : (5.15...5.35)
Rack travel in mm : 20.00...21.00 Firing order : 8- 7- 2- 6- 3-4-1 Phasina 0-45-90-135-180-225 270-315 Tolerance + - ° : 0.30 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 13.40...13.50 Dec.quantity cm3/: 21.1...21.3 100 s: (20.8...21.6) Spread cm3 : 0.6100 s: (0.9) 2nd speed rpm : 300Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700Aneroid pressure h: 750 : 211.0...213.0 Del.quantity 1000 : (208.0...216.0) Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Setting point: Speed : 600 rpm

Outside diameter

x Wall thickness x Length mm

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

: 8.00x2.50x1000

Rack travel in mm: 20.0 Testina: 1st rack travel in: 12.45 rpm : 990...1006 Speed 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.60LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 6.5 Testing: rpm : 200 Speed Minimum rack trave: 8.80 rpm : 300 Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 380...420 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 400 Speed rpm Pressure hPa : 400 : 12.35...12.45 Rack travel mm Measurement Speed 1/min: 400 1st pressure hPa : 750 Rack travel in m: 13.40...13.50 2nd pressure hPa : 200 Rack travel in m: 11.50...11.70 3rd pressure hPa : -Rack travel in m: 11.00...11.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 750 rpm : 950 Speed Del.quantity cm3/: 210.0...216.0 1000 s: (207.0...219.0) Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: 400 Speed : 400 rpm F14

Del.quantity cm3/: 156.5...159.5 1000 s: (153.5...162.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.45 Speed rpm : 990...1006

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

:

Remarks:

Note remarks

Test sheet : MB : 02.94 Edition : 10.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 938

Injection pump Pump designation : PE8P120A320LS7840-10

EP type number : 0 412 628 856

Governor

Governor design. : RQ300/1050PA1030-2

Governer no. : 0 421 801 652

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

: 250.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order

5-

: 8-7-2-6-3-

4-1

Phasing

0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: 108...110

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 750

: 211.0...213.0 Del.quantity

1000 : (208.0...216.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 91.0...99.0

Setting point: rpm : 600 Speed Rack travel in mm : 20.0 Testina: 1st rack travel in: 11.80 Speed rpm : 1090...1106 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 69.0...77.0 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 200 Minimum rack trave: 8.80 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.70...12.90 2nd speed rpm : 900 Rack travel in m: 12.95...13.05 3rd speed rpm : 800 Rack travel in m: 13.40.. 13.50 Aneroid/Altitude Compensator Test 1st version Setting : 400 Speed rpm Pressure hPa : 400 Rack travel mm : 12.35...12.45 Measurement 1/min: 400 Speed 1st pressure hPa : 750 Rack travel in m: 13.40...13.50 2nd pressure hPa : 200 Rack travel in m: 11.50...11.70 3rd pressure hPa : -Rack travel in m: 11.00...11.30 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 750 Speed rpm : 1050 Del.quantity cm3/ : 192.0...196.0 1000 s: (189.0...199.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 400 rpm_ : 400 Speed Del.quantity cm3/: 156.5...159.5 1000 s: (153.5...162.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 50.0...70.0

1000 s: (46.0...74.0)

Rémarks:

:

Note remarks

Test sheet : MAN 10,0 c3 Edition : 13.06.94 Replaces : 01.02.91 Test oil : ISO-4113

Combination no. : 0 402 735 803

Injection pump Pump designation : PES5P120A720/3LS7210

EP type number : 0 412 725 808

Governor

Governor design. RQV325...1000PA960-3

Sovemer no. : 0 421 815 271

Customer-spec. information Customer : MAN

: p2865LF06/LU06 Engine

1st version kW : 235.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.80...4.90 Prestroke mm : (4.75...4.95)

Rack travel in mm : 15.00...16.00 Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60 & maximum rack tra: 15.0...16.0 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 26.9...27.1

100 s: (26.6...27.4)

3,

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 5.9...6.3 Del.quantity cm3/: 4.7...5.3 100 s: (4.4...5.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed

: 9.40...9.60 travel mm rpm : 325 2nd speed

travel mm : 1.30...1.50 3rd speed rpm : 500

travel mm : 3.20...3.80

4th speed rpm : 900

travel mm : 7.60...8.00

: 1350 5th speed rpm

travel mm : 13.90...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 hPa : 1200 Pressure Speed rpm: 1110 Rack travel in mm: 15.20...17.80 Rack travel mm : 13.50...13.60 Measurement FULL LOAD DELIV. AT FULL LOAD STOP 1/min : 900 Speed 1st version 1st pressure hPa : -Speed rpm : 900 Rack travel in m: 9.20...9.40 Aneroid pressure h: 1200 2nd pressure hPa : 170 Del.quantity : 269.0...271.0 Rack travel in m: 9.60...9.70 1000 : (266.0...274.0) 3rd pressure hPa : 600 Spread cm3 : 5.00 Rack travel in m: 12.00...12.40 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 245 (265) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 293. .301 Testina: 1st version 1st rack travel in: 12.10 Aneroid pressure h: 1200 Speed rpm: 1000
Del.quantity cm3/: 248.0...254.0
1000 s: (245.0...257.0)
Aneroid pressure h: 1200 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1350 Speed rpm : 0.00...1.00 rpm Del.quantity cm3/: 270.0...276.0 LOW IDLE 1 1000 s: (267.0...279.0) Control lever Aneroid pressure h: position degrees: 249...257 rpm : 500 Speed Del.quantity cm3/: 159.0...161.0 Testing: 1000 s: (156.0...164.0) **Speed** rpm : 100 Minimum rack trave: 7.60 Speed rpm : 325 BREAKAWAY Rack travel in mm : 6.00...6.20 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 340...450 Speed full load rack tr: 12.10 TORQUE CONTROL rpm : 1040...1050 Speed Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 900 Rack travel in m: 13.50...13.60 2nd speed rpm : 1000 Speed rpm : 100 Rack travel in m: 13.10...13.30 Del.quantity cm3/: 180.0...200.0 rpm : 650 3rd speed 1000 s: (176.0...204.0) Rack travel in m: 12.70...12.90 4th speed rpm : 400 LOW IDLE Rack travel in m: 11.90...12.20 rpm : 325 Speed Aneroid/Altitude Rack travel in mm : 5.90...6.30 Compensator Test Del.quantity cm3/: 47.0...53.0 1000 s: (44.0...56.0) cm3 : 8.00Spread 1st version 1000 s: (12.00) Setting Speed rpm : 900 Remarks:

F18



Setting and blocking of pointer of start-of-delivery sensor on cyl. 5 start of delivery

Note remarks

Test sheet : CUM : 15.06.93 Edition : 03.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 834

Injection pump

Pump designation : PES6P120A120RS7265 EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1100PA964

-12K

Governer no. : 0 421 815 323

Customer—spec. information Customer : C.D.C.

: 6CTA-A Engine

1st version kW : 186.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 103

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 6.4...6.8 Del.quantity cm3/: 2.0...2.6

100 s: (1.8...2.8)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

: 450 2nd speed rpm

: 3.20...3.60 travel mm

900 3rd speed rpm

travel mm 5.60...6.00

: 1200 4th speed

rpm

: 8.10...8.30 travel mm

5th speed rpm : 1400

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 211.3...216.5) Rack travel in m: 10.10...10.20 3rd pressure hPa : 650 Rack travel in m: 12.40...12.80 cm3 : 5.00 1000 : (9.00) Spread START CUT-OUT RATED SPEED 1/min : 290 (300) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 58...66 Testina: 1st version 1st rack travel in: 12.40 Speed rpm : 1245...1275 Aneroid pressure h: 1200 : 650 Speed rpm 2nd rack travel in: 4.00 Del.quantity cm3/: 166.0...172.0 rpm : 1390...1400 Speed 1000 s: (163.0...175.0) 4th rack travel in: 1500 cm3 : 8.00 Spread Speed rpm : 0.00...1.001000 s: (12.0) Ameroid pressure h: 1200 LOW IDLE 1 : 750 Speed rpm Del.quantity cm3/: 175.0...181.0 1000 s: (172.0...184.0) Control Lever position degrees: 13...21 cm3 : 8.00Spread Testing: 1000 s: (12.0) Speed rpm : 275 Aneroid pressure h: rpm_ : 1000 Minimum rack trave: 8.30 Speed rpm : 350 Del.quantity cm3/: 82.5...86.5 Rack travel in mm : 6.40...6.80 1000 s: (80.5...88.5) CONSTANT REGULATION rpm : 325...520 Speed **BREAKAWAY** TORQUE CONTROL 1st version Dimension a mm :? 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 1100 full load rack tr: 12.40 Rack travel in m: 13.90...14.00 rpm : 1245...1275 Speed : 650 2nd speed rpm Rack travel in m: 12.00...12.40 STARTING FUEL DELIVERY rpm : 1200 3rd speed Rack travel in m: 13.40...15.60 4th speed rpm : 750 Speed : 100 rpm Rack travel in m: 12.40...12.80 Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Aneroid/Altitude Rack travel in mm : 12.00...13.00 Compensator Test LOW IDLE 1st version Speed rpm : 350 Setting Rack travel in mm: 6.40...6.80 Speed : 1100 LDW Del.quantity cm3/: 20.0...26.0 hPa : 1200 Pressure 1000 s: (18.0...28.0) : 13.90...14.00 Rack travel mm Spread cm3 : 8.00 1000 s: (12.00) Measurement 1/min: 1100 Speed Remarks: : C.D.C. # 3922471 1st pressure hPa : -Rack travel in m: 8.60...9.00 2nd pressure hPa : 310 Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Bow dimension: Sliding-sleeve position = 37.0 mm Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM
Edition : 27.05.94
Replaces : 08.93
Test oil : 150-4113

Combination no. : 0 402 736 835

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...900PA964-13 k

Governer no. : 0 421 815 324

Customer—spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10) Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350.0

Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 2.0...2.6 100 s: (1.8...2.8)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm: 450

travel mm : 3.00...3.40

3rd speed rpm : 600

travel mm : 5.20...5.60

4th speed rpm : 1000

travel mm : 8.40...8.60

5th speed rpm: 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 900 Aneroid pressure h: 1200 : 242.0...244.0 Del.quantity 1000 : (239.0...247.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 111...123 Testing: 1st rack travel in: 13.30 rpm : 1060...1090 Speed 2nd rack travel in: 4.00 rpm : 1210...1220 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 60...72 Testing: Speed rpm : 275 Minimum rack trave: 8.10 Speed : 350 rpm Rack travel in mm : 6.50...6.70 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 14.70...14.80 : 650 2nd speed rpm Rack travel in m: 13.70...14.10 3rd speed rpm : 1000 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rpm Pressure hPa : 1200 Rack travel mm : 14.70...14.80 Measurement 1/min: 900 Speed 1st pressure hPa : -

Rack travel in m: 9.20...9.60 2nd pressure hPa : 325 Rack travel in m: 10.60...10.70 3rd pressure hPa : 765 Rack travel in m: 13.10...13.50 START CUT-OUT Speed 1/min: 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 650 rpm Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5) cm3 : 8.00Spread 1000 s: (12.0 Aneroid pressure h: -: 1000 Speed rpm Del.quantity cm3/: 94.5...98.5 1000 s: (92.5...1C0.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1060...1090 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm: 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) cm3 : 8.00 Spread 1000 s: (12.00) Start-of-delivery mark = 5.5° after start of delivery cyl. 1. # 3922446 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

F24

Note remarks

Test sheet : CUM

Edition : 27.05.94 : 16.07.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1000PA964

-14K

: 0 421 815 325 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzie holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05 : (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350.0

Rack travel in mm : 5.6...6.8

Del.quantity cm3/ : 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

1.80...2.00 travel mm

2nd speed rpm : 450

: 3.10...3.50 travel mm

3rd speed rpm : 600

: 5.10...5.50 travel mm

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 230.0...241.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 62...70 Testina: 1st rack travel in: 12.90 Speed rpm : 1150...1180 2nd rack travel in: 4.00 rpm : 1295...1305 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 60...72 Testing: Speed rpm : 275 Minimum rack trave: 8.10 : 350 Speed rpm Rack travel in mm : 6.60...6.80 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.50...14.60 : 650 2nd speed rpm Rack travel in m: 13.30...13.70 3rd speed rpm : 1100 Rack travel in m: 13.90...14.10 Aneroid/Altitude Compensator Test 1st version Setting : 1000 Speed rpm Pressure hPa : 1200 Rack travel mm : 14.50...14.60 Measurement 1/min: 1000 Speed

1st pressure hPa : -Rack travel in m: 9.20...9.60 2nd pressure hPa : 325 Rack travel in m: 10.60...10.70

Rack travel in m: 13.20...13.60 START CUT-OUT 1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 650 rpm Del.quantity cm3/: 205.0...211.0 1000 s: (202.0...214.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 1000 Speed rpm Del.quancity cm3/: 94.5...98.5 1000 s: (92.5...100.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1150...1180 Speed STARTING FUEL DELIVERY Speed rpm : 100 tel.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm : 12.00...13.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : C.D.C. # 3922427 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

3rd pressure hPa : 765

Note remarks

Test sheet : CUM : 4.6.94 Edition : 02.94 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 837

Injection pump

Pump designation : PES6P120A120RS7265 : 0 412 726 882 EP type number

Governor

: RQV400...1250PA964 Governor design.

-15K

: 0 421 815 332 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CTA-A Engine

: 186.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm : (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 13.80...13.90

Del.guantity cm3/: 21.5...21.7

100 s: (21.2...22.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 3502nd speed

Rack travel in mm : 6.3...6.7 Del.quantity cm3/ : 2.2...2.8 100 s: (2.0...3.0)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.80...2.00 travel mm

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600 travel mm

: 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

rpm : 1200 5th speed

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000Speed Aneroid pressure h: 1200

: 215.5...217.5 1000 : (212.5...220.5) Del.quantity Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 114...126 Testing: 1st rack travel in: 12.40 rpm : 1150...1180 Speed 2nd rack travel in: 4.00 Speed rpm : 1295...1305 4th rack travel in: 1400 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 62...74 Testing: Speed rpm : 275 Minimum rack trave: 8.10 rpm : 350 Rack travel in mm : 6.30...6.70 CONSTANT REGULATION rpm : 325...515 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.80...13.90 2nd speed rpm : 650 Rack travel in m: 13.10...13.50 3rd speed rpm : 1100 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rom hPa : 1200 Pressure Rack travel mm : 13.80...13.90 Measurement 1/min: 1000 Speed 1st pressure hPa : -

Rack travel in m: 9.20...9.60

Rack travel in m: 10.60...10.70

2nd pressure hPa : 325

3rd pressure hPa : 765

START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 650 Del.quantity cm3/: 205.0.. 211.0 1000 s: (202.0...214.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1000 Del.quantity cm3/ : 94.5...98.5 1000 s: (92.5...100.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1150...1180 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.30...6.70 Del.quantity cm3/ : 22.0...28.0 1000 s: (20.0...30.0) Spread cm3 : 8.001000 s: (12.00) Remarks: : C.D.C # 3922449 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Rack travel in m: 13.10...13.50

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM : 9.6.94 Edition : 02.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 736 838

Injection pump

Pump designation : PES6P120A120RS7275 EP type number : 0 412 725 886

Governor

: RQV400...1250PA964 Governor design.

-16K

: 0 421 815 334 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

: 119.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values __

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2-Firing order

Phasing 0-60-120-130-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm: 13.40...13.50

Del.quantity cm3/: 15.3...15.4

100 s: (14.9...15.7)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400

Rack travel in mm: 6.0...6.4 Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

: 1.40...1.60 travel mm

rpm : 500 2nd speed

: 2.30...2.70 travel mm

3rd speed rpm : 800

: 4.80...5.20 travel mm

4th speed rpm : 1250

: 6.90...7.10 travel mm

: 1500 5th speed rpm

travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 152.5...154.5 1000 : (149.5...157.5) cm3 : 8.00 Spread 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 110...122 Testing: 1st rack travel in: 12.40 rpm : 1310...1340 **besq2** 2nd rack travel in: 4.00 rpm : 1560...1570 Speed 4th rack travel in: 1675 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 65...77 Testing: Speed rpm : 300 Minimum rack trave: 7.70 Speed : 400 rpm Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 325...519 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.40...13.50 : 800 2nd speed rpm Rack travel in m: 11.60...12.00 rd speed rpm : 500 Rack travel in m: 11.20...11.60 3rd speed rpm : 900 4th speed Rack travel in m: 12.00...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1250 hPa : 1200 Pressure Rack travel mm : 13.40...13.50 Measurement Speed 1/min : 1250 1st pressure hPa : -Rack travel in m: 10.30...10.70 2nd pressure hPa : 265

Rack travel in m: 11.10...11.20 3rd pressure hPa : 440 Rack travel in m: 12.70...13.10 START CUT-OUT Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 900 rpm Del.quantity cm3/: 130.5...136.5 1000 s: (127.5...139.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 Speed rpm : 1310...1340 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00...14.00 LOW IDLE rpm : 450 Speed Rack travel in mm: 6.00...6.40 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C # 3921918 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM : 4.6.94 Edition Replaces : 21.01.94 Test oil : ISO-4113

Combination no. : 0 402 736 839

Injection pump

Pump designation : PES6P120A120RS7265 EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1100PA964

-17K

: 0 421 815 335 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

: 167.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm : (3.90...4.10)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.6 Del.quantity cm3/: 2.0...2.6

100 s: (1.8...2.8)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40 2nd speed rpm : 450

travel mm

: 3.20...3.60 3rd speed rpm : 900

: 5.60...6.00 travel mm

4th speed rpm : 1200

travel mm : 8.10...8.30 5th speed : 1400 rpm

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

: 197.0...199.0 Del.quantity 1000 : (194.0...202.0) Spread cm3 : 5.001000 : (9.00) RATED SPEED 1st version Control lever position degrees: 109...121 Testing: 1st rack travel in: 11.90 rpm : 1250...1280 Speed 2nd rack travel in: 4.00 rpm : 1380...1390 Speed 4th rack travel in: 1450 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 64...76 Testina: Speed rpm : 275 Minimum rack trave: 7.90 Speed rpm Rack travel in mm : 6.20...6.60 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.20...13.30 : 650 2nd speed rpm Rack travel in m: 12.20...12.60 3rd speed rpm : 1200 Rack travel in m: 12.90...13.10 Aneroid/Altitude Compensator Test 1st version Settina Speed : 1100 rpm hPa : 1200 Pressure Rack travel mm : 13.20...13.30 Measurement Speed 1/min : 1100 1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 255 Rack travel in m: 9.70...9.80

Rack travel in m: 11.60...12.00 START CUT-OUT Speed 1/min: 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 650 rpm Del.quantity cm3/: 183.5...189.5 100G s: (180.5...192.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1100 Del.quantity cm3/ : 85.0...89.0 1000 s: (83.0...91.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 Speed rpm : 1250...1280 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 195.0...235.0 1000 s: (190.0...240.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.20...6.60 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: : C.D.C. # 3922424 Start-of-delivery blocking 5,25° after start of delivery of cylinder no. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

3rd pressure hPa : 520

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM : 4.6.94 Edition : 21.01.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 736 840 Injection pump EP type number : 0 412 726 882 Governor Governor design. -18K Governer no. : 0 421 815 336 Customer-spec. information Customer : C.D.C. Engine : 6CTA-A : 157.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 086 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 103 assembly Opening : 207...210 pressure, bar

Pump designation : PES6P120A120RS7265 : RQV350...1100PA964 Orifice plate diameter mm : 0,7 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 22...24 : 3.95...4.05 Prestroke mm : (3.90...4.10) Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2-Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Pack travel in mm : 12.70...12.80 Del.quantity cm3/: 18.0...18.2 100 s: (17.7...18.5) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8 Del.quantity cm3/: 2.0...2.6 100 s: (1.8...2.8) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 350 1st speed travel mm : 2.10...2.40 2nd speed rpm : 450 : 3.20...3.60 travel mm 3rd speed rpm : 900 : 5.60...6.00 travel mm 4th speed rpm : 1200 travel mm 8.10...8.30 5th speed : 1400 man : 10.20...10.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 1200

Del.quantity : 180.0...182.0 1000 : (177.0...185.0) Rack travel in m: 11.50...11.90 Spread cm3 : 5.00START CUT-OUT 1000 : (9.00) 1/min : 290 (300) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS ist version Control lever position degrees: 110...122 1st version Aneroid pressure h: 1200 Testing: : 650 rpm 1st rack travel in: 11.40 Del.quaritity cm3/: 167.0...173.0 rpm : 1250...1280 Speed 1000 s: (164.0...176.0) 2nd rack travel in: 4.00 Spread cm3 : 8.00rpm : 1380...1390 Speed 1000 s: (12.0) 4th rack travel in: 1450 Aneroid pressure h: -Speed rpm : 1100 Del.quantity cm3/: 85.0...89.0 rpm : 0.00...1.00Speed LOW IDLE 1 1000 s: (83.0...91.0) Control lever position degrees: 61...73 BREAKAWAY Testing: Speed rpm : 275 1st version Minimum rack trave: 7.90 1mm rack travel less than Speed rpm : 350 Rack travel in mm : 6.40...6.80 full load rack tr: 11.40 rom : 1250...1280 Speed CONSTANT REGULATION rpm : 350...500 Speed STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm :? rpm : 100 Speed Del.quantity cm3/: 190.0...230.0 1000 s: (185.0...235.0) Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.70...12.80 Rack travel in mm : 12.00...13.00 nd speed rpm : 650
Rack travel in m: 11.70...12.10 2nd speed LOW IDLE 3rd speed rpm : 1200 Rack travel in m: 12.40...12.60 Speed rpm : 350 Rack travel in mm : 6.40...6.80 Aneroid/Altitude Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) Compensator Test cm3 : 8.00 Spread 1000 s: (12.00) 1st version Setting Remarks: Speed : 1100 rpm : C.D.C. # 3922426 hPa : 1200 Pressure Rack travel mm : 12.70...12.80 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Measurement Speed 1/min: 1100 Delivery-valve spring pre-tension = 6.30...6.40 mm. 1st pressure hPa : -Permissible alteration from 6.00...6.70 Rack travel in m: 8.60...9.00 2nd pressure hPa : 255 Rack travel in m: 9.70...9.80 3rd pressure hPa : 520

Note remarks

Test sheet : CUM : 4.6.94 Edition Replaces : 02.94 Test oil : ISO-4113

Combination no. ': 0 402 736 841

Injection pump

Pump designation : PES6P120A120RS7275 EP type number : 0 412 726 886

Governor

Governor design. : RQV400...1250PA964

-19K

: 0 421 815 342 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 130.5 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 9.00...12.00 : 1- 5- 3- 6- 2-Firing order

Phasing U-60-1Ž0-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 400 2nd speed

Rack travel in mm : 5.9...6.3 Del.quantity cm3/ : 1.4...2.0 100 s: (1.2...2.2)

cm3 : 0.4Spread

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

1.30...1.50 travel mm 500

2nd speed rpm

travel mm 2.30...2.70

3rd speed : 800 rpm

travel mm : 4.80...5.20

4th speed : 1250 rpm

: 6.90...7.10 travel mm

5th speed : 1500 rpm

: 8.30...8.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

G08

Del.quantity : 159.5...161.5 Rack travel in m: 11.30...11.40 1000 : (156.5...164.5) 3rd pressure hPa : 430 cm3: 8.00 Spread Rack travel in m: 12.80...13.20 1000 : (12.00) START CUT-OUT RATED SPEED Speed 1/min : 250 (260) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 111...123 Testing: 1st version 1st rack travel in: 12.40 Aneroid pressure h: 1200 rpm : 1300...1330 Speed : 900 Speed rpm Del.quantity cm3/: 135.0...141.0 1000 s: (132.0...144.0) 2nd rack travel in: 4.00 : 1560...1570 Speed rpm cm3 : 8.00 4th rack travel in: 1675 Spread Speed rpm : 0.00...1.00 1000 s: (12.0) Aneroid pressure h: -LOW IDLE 1 Speed rpm : 1250 Del.quantity cm3/ : 110.0...114.0 Control lever position degrees: 65...77 1000 s: (108.0...116.0) Testing: Speed **BREAKAWAY** rpm Minimum rack trave: 7.40 : 400 rpm 1st version Rack travel in mm : 5.90...6.30 1mm rack travel less than CONSTAINT REGULATION full load rack tr: 12.40 Speed rpm : 325...519 rpm : 1300...1330 Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm :? Torque control curve - 1st version : 1250 1st speed rpm Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in m: 13.40...13.50 : 800 2nd speed rpm Rack travel in m: 11.70...11.90 Rack travel in mm : 13.00...14.00 3rd speed rpm : 500 Rack travel in m: 11.30...11.70 th speed rpm : 900 Rack travel in m: 12.00...12.20 LOW IDLE 4th speed rpm Speed : 400 rpm Rack travel in mm : 5.90...6.30 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) Aneroid/Altitude Compensator Test cm3 : 4.00Spread 1000 s: (8.00) 1st version Setting Remarks: Speed : 1250 : C.D.C. # 3921920 rpm hPa : 1200 Pressure : 13.40...13.50 Rack travel mm Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1. Measurement 1/min: 1250 Speed Delivery-valve spring pre-tension = 6.30...6.40 mm. 1st pressure hPa : -Rack travel in m: 10.20...10.60 Permissible alteration from 6.00...6.70 2nd pressure hPa : 260

G09

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 16.07.93
Test oil : ISC-4113

Combination no. : 0 402 736 842

Injection pump

Pump designation : PES6P120A120RS7281 EP type number : 0 412 726 890

Governor

Governor design. : RQV400...1250PA1060

-1K

Governer no. : 0 421 815 344

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.7)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400.0 Rack travel in mm : 6.0...6.4 Del.quantity cm3/ : 1.5...2.1 100 s: (1.3...2.3)

Spread cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400 travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 2.50...2.90 3rd speed rpm : 800

travel mm : 4.00...4.40

4th speed rpm: 1250

travel mm : 6.90...7.10

5th speed rpm: 1500

travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 152.5...157.5) : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 114...126 Testing: 1st rack travel in: 12.30 rpm : 1310...1340 Speed 2nd rack travel in: 4.00 rpm : 1475...1485 4th rack travel in: 1550 rom : 6.60...1.00 Sceed LOW IDLE 1 Control lever position degrees: 67...79 Testing: Speed : 275 rom Minimum rack trave: 7.80 : 400 rpm Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.30...13.40 2nd speed rpm : 800 Rack travel in m: 11.80...12.20 3rd speed rpm : 500
Rack travel in m: 11.40...11.80
4th speed rpm : 900
Rack travel in m: 12.20...12.60 Anaroid/Altitude Compensator Test 1st version Setting Speed : 1250 rpm hPa : 1200 Pressure : 13.30...13.40 Rack travel mm Measurement 1/min: 1250 Speed

Rack travel in m: 12.70...13.10 START CUT-OUT Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Del.quantity cm3/: 127.5...133.5 1000 s: (124.5...136.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 1250 Speed Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1310...1340 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00. .. 14.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C. # 3925085 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

Rack travel in m: 11.10...11.20

3rd pressure hPa : 440

1st pressure hPa : -

2nd pressure hPa : 265

Rack travel in m: 10.30...10.70

Note remarks

Test sheet : CUM Edition : 4.6.94 : 16.08.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 843

Injection pump

Pump designation : PES6P120A120RS7281 EP type number : 0 412 726 890

Governor

Governor design. RQV400...1250PA1060K

Governer no. : 0 421 815 343

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

: 130.0 1st version kW Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 : (3.50...3.70) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm: 13.50...13.60

Del.quantity cm3/ : 15.5...15.7

100 s: (15.2...16.0)

cm3 : 0.8Spread

100 s: (1.2)

rpm : 400.02nd speed Rack travel in mm: 6.1...6.5 Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed : 1.40...1.60 travel mm

2nd speed rpm : 550

travel mm : 2.50...2.90

3rd speed : 800 rpm

travel mm : 4.00...4.40

4th speed : 1250 rpm

: 6.90...7.10 travel mm

5th speed : 1500 rpm

: 9.10...9.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 155.5...157.5 1000 : (152.5...160.5) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 111...123 Testing: 1st rack travel in: 12.50 rpm : 1305...1335 Speed 2nd rack travel in: 4.00 rpm : 1470...1480 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 66...78 Testing: speed rpm : 300 Minimum rack trave: 7.70 Speed rom : 400 Rack travel in mm : 6.10...6.50 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL : ? Dimension a mm Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.50...13.60 2nd speed rpm : 800 Rack travel in m: 11.60...11.80 3rd speed rpm : 500 Rack travel in m: 11.20...11.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 rom hPa : 1200 Pressure Rack travel mm : 13.50...13.60 Measurement Speed 1/min: 1250 1st pressure hPa : -Rack travel in m: 10.40...10.80

Rack travel in m: 13.00...13.40 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 800 Del.quantity cm3/: 124.0...130.0 1000 s: (121.5...132.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/ : 109.5...113.5 1000 s: (107.5...115.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.50 Speed rpm : 1305...1335 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00...14.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 6.10...6.50 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C. # 3925086 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

2nd pressure hPa : 260

3rd pressure hPa : 430

Rack travel in m: 11.30...11.40

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM : 4.6.94 Edition : 02.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 736 844 Injection pump EP type number : 0 412 726 896 Governor Governor design. -21K : 0 421 815 354 Gowerner no. Customer-spec. information Customer : C.D.C. Engine : 6BTA-A 1st version kW : 171.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 086 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 90...110 Test nozzle holder : 1 688 901 103 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,7

Fump designation : PES6P12UA12URS7287 : RQV400...1250PA964 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x3.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 22...24 : 3.55...3.65 Prestroke mm : (3.50...3.70) Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-Phasina 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 14.80...14.90 Del.quantity cm3/: 19.3...219.5 100 s: (19.0...19.8) cm3 : 0.8Spread 100 s: (1.2) 2nd speed rpm : 400.0 Rack travel in mm : 6.4...6.8 Del.quantity cm3/ : 2.0...2.6 100 s: (1.8...2.8) Spread cm3 : 0.4100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 400 travel mm : 1.40...1.60 2nd speed : 550 rpm : 3.10...3.50 travel mm rpm : 800 3rd speed : 4.30...4.70 travel mm 4th speed : 1250 rpm : 7.00...7.20 travel mm : 1500 5th speed rpm : 9.20...9.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1475 Speed

Rack travel in mm : 9.00...12.00

Measurement FULL LOAD DELIV. AT FULL LOAD STOP Speed 1/min: 1150 1st version 1st pressure hPa : -Rack travel in m: 10.20...10.60 Speed rpm : 1150 Aneroid pressure h: 1200 2nd pressure hPa : 355 Rack travel in m: 11.30...11.40 : 193.5...195.5 Del.quantity 1000 : (190.5...198.5) 3rd pressure hPa : 645 Spread : 8.00 Rack travel in m: 13.30...13.70 cm31000 : (12,00) START CUT-OUT RATED SPEED beed 1/min: 315 (325) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 114.0...126.0 Testing: 1st version 1st rack travel in: 13.40 Aneroid pressure h: 1200 Speed rpm : 1300...1330 Speed : 900 rpm 2nd rack travel in: 4.00 Del.quantity cm3/: 179.0...185.0 Speed rpm: : 1480...1490 1000 s: (176.0...188.0) 4th rack travel in: 1550 cm3 : 8.00Spread Speed : 0.00...1.00 1000 s: (12.0) rom Aneroid pressure h: -Speed rpm : 1150 Del.quantity cm3/ : 94.5...98.5 1000 s: (92.5...100.5) LOW IDLE 1 Control lever position degrees: 67...79 Testing: Speed : 300 **BREAKAWAY** rpm Minimum rack trave: 9.00 Speed : 400 mqn 1st version Rack travel in mm : 6.40...6.80 1mm rack travel less than CONSTANT REGULATION full load rack tr: 13.40 Speed rpm : 350...500 Speed rpm : 1300...1330 TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm Torque control curve - 1st version : 1150 1st speed rpm Speed : 100 rpm Rack travel in m: 14.80...14.90 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) : 800 2nd speed COM Rack travel in m: 13.80...14.20 Rack travel in mm : 12.00...13.00 3rd speed : 1250 rpm Rack travel in m: 14.40...14.60 LOW IDLE 4th speed rpm : 900 Rack travel in m: 14.00...14.40 Speed : 400 rpm Rack travel in mm : 6.40...6.80 Aneroid/Altitude Del.quantity cm3/: 18.0...26.0 Compensator Test 1000 s: (18.0...28.0) Spread cm3 : 4.001000 s: (8.00) 1st version Setting Remarks: Speed : 1150 rpm : C.D.C. # 3921925 hPa : 1200 Pressure Rack travel mm : 14.80...14.90 Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

Note remarks

Test sheet : CUM Edition : 4.6.94

Replaces : 150-4113 Test oil

: 0 402 736 845 Combination no.

Injection pump

Pump designation: PES6P12DA12DRS7286

EP type number : 0 412 726 894

Governor

Governor design. : RQV350...1110PA964

-20K

: 0 421 815 352 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

: 224.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 95...115

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 : (3.90...4.10) Prestroke mm

Fack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 15.20...15.30

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8

Del.quantity cm3/: 2.1...2.7 100 s: (1.9...2.9)

cm3 : 0.4Spread

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 350 : 2.10...2.40 travel mm

rpm : 450 2nd speed travel mm

: 3.20...3.60 3rd speed : 900 rpm

: 5.60...6.00 travel mm

: 1200 4th speed rpm : 8.10...8.30 travel mm

5th speed : 1400 rpm

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 240.0...242.0 1000 : (237.0...245.0) Spread cm3: 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 113.0...125.0 Testing: 1st rack travel in: 13.60 rpm : 1240...1270 Speed 2nd rack travel in: 4.00 rpm : 1395...1405 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 65...79 Testing: Speed rom : 275 Minimum rack trave: 8.30 : 350 rpm Rack travel in mm : 6.40...6.80 CONSTANT REGULATION Speed rpm : 330...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 15.20...15.30 2nd speed rpm : 750 Rack travel in m: 13.50...13.90 3rd speed rpm : 1200 Rack travel in m: 14.60...14.80 4th speed rpm : 650 Rack travel in m: 13.20...13.60 Aneroid/Altitude Compensator Test 1st version Settina Speed : 1100 rom Pressure hPa : 1200 Rack travel mm : 15.20...15.30 Measurement 1/min: 1100 Speed

Rack travel in m: 10.90...11.00 3rd pressure hPa : 715 Rack travel in m: 13.60...14.00 START CUT-OUT Speed 1/min : 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 750 Del.quantity cm3/: 205.0...211.0 1000 s: (202.0...214.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 77.0...81.0 1000 s: (75.0...83.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.60 Speed rpm : 1240...1270 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 11.00...12.00 LOW IDLE Speed rpm : 350 Rack travel in mm: 6.40...6.80 Del.quantity cm3/: 21.0...27.0 1000 s: (19.0...29.0) cm3 : 4.00Spread 1000 s: (8.00) Remarks: : C.D.C. # 3922425 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Start-of-delivery blocking 6,25° after

start of delivery of cylinder no. 1.

1st pressure hPa : -

2nd pressure hPa : 335

Rack travel in m: 9.00...9.40

Note remarks

Test sheet : CUM : 4.6.94 Edition : 02.94 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 846

Injection pump

Pump designation : PES6P120A120RS7287

EP type number : 0 412 726 896

Governor

Governor design. : RQV400...1250PA1081K

Governer no. : 0 421 815 360

Customer-spec. information Customer : C.D.C

Engine : 6BTA-A

: 156.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bai: 22...24

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.90...14.00

Del.guantity cm3/: 17.5...17.7

100 s: (17.2...18.6)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 420 2nd speed

Rack travel in mm : 5.1...5.5 Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2)

cm3 : 0.4Spread

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm 1.40...1.60

550 2nd speed rpm

: 3.10...3.50 travel mm

3rd speed : 800 L DIU

travel mm : 4.30...4.70

4th speed : 1250 rpm

: 7.00...7.20 travel mm

5th speed : 1500 rpm

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

beed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 1/3.0...180.0)

Spread

: 8.00 cm3

1000 : (12.00)

RATED SPEED

1st version

Control Lever

position degrees: 112...124

Testing:

1st rack travel in: 12.90

rpm : 1295,...1325 Speed

2nd rack travel in: 4.00

rpm : 1470...1480 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 66...78

Testing:

Speed : 300 rpm

Minimum rack trave: 8.90 rpm : 420 Speed

Rack travel in mm : 5.10...5.50

CONSTANT REGULATION

Speed rpm : 345...495

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 13.90...14.00

2nd speed rpm : 800

Rack travel in m: 11.90...12.10 3rd speed rpm : 500 Rack travel in m: 10.70...11.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 1250 rpm

hPa : 1200 Pressure

: 13.90...14.00 Rack travel mm

Measurement

Speed 1/min: 1250

1st pressure hPa :-

Rack travel in m: 9.60...10.00

2nd pressure hPa : 305

Rack travel in m: 10.90...11.00

3rd pressure hPa : 585

Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min: 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed : 800 rpm

Del.quantity cm3/: 127.0...133.0 1000 s: (124.0...136.0)

cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 1250

Del.quantity cm3/: 93.0...97.0

1000 s: (91.0...99.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 12.90

Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

rpm : 420 Speed

Rack travel in mm : 5.10...5.50 Del.quantity cm3/: 14.0...20.0

1000 s: (12.0...22.0)

cm3 : 4.00Spread

1000 s: (8.00)

Remarks:

: c.b.c. # 3924903

Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Start-of-delivery mark 6° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : CUM : 4.6.94 Edition : 02.94 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 847

Injection pump

Pump designation : PES6P120A120RS7287 EP type number : 0 412 726 896

Governor

Governor design. : RQV400...1250PA964

-22K

Governer no. : D 421 815 366

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

ist version kw : 156.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

cm3 : 0.8 Spread!

100 s: (1.2)

rpm : 400 2nd speed

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.4...2.4)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

travel mm : 1.40...1.60

: 550 2nd speed rpm

: 3.10...3.50 travel mm

: 800 3rd speed rpm

: 4.30...4.70 : 1250 travel mm

4th speed rpm

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1200

Del.quantity : 1//.u....182.0) cm3 : 8.001000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 13.10 rpm : 1300...1330 Speed 2nd rack travel in: 4.00 Speed rpm: 1475...1485 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...78 Testing: Speed : 300 rom Minimum rack trave: 8.80 : 400 rpm Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL : ? Dimension a mm Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 14.30...14.40 rpm : 800 2nd speed Rack travel in m: 13.10...13.50 3rd speed rpm : 1250 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1150 rom hPa : 1200 Pressure Rack travel mm : 14.30...14.40 Measurement 1/min: 1150 Speed 1st pressure hPa : -Rack travel in m: 10.40...10.80 2nd pressure hPa : 425 Rack travel in m: 11.40...11.50 3rd pressure hPa : 685

Rack travel in m: 13.20...13.60 START CUT-OUT Speed 1/min : 315 (325) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 159.0...165.0 1000 s: (156.0...168.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1150 Del.quantity cm3/ : 99.0...103.0 1000 s: (97.0...105.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1300...1330 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 16.5...22.5 1000 s: (14.5...24.5) cm3 : 4.00Spread 1000 s: (8.00) Remarks: : C.D.C. # 3921923 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after

start of delivery of cylinder no. 1.

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 02.94
Test oil : ISO-4113

Combination no. : 0 402 736 848

Injection pump

Pump designation : PES6P12DA12ORS7314 EP type number : 0 412 726 901

Governor

Governor design. : RQV400...1250PA964

-24K

Governer no. : 0 421 815 374

Customer—spec. information Customer : CDC

Engine : 6BTA-A

1st version kW : 142.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

 \times Length mm : 6.00 \times 1.50 \times 600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-189-240-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 420

Rack travel in mm : 5.6...6.0 Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm3 : 0.4 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400 travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm: 800

travel mm : 4.30...4.70 4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1200

Del.quantity : 165.5...167.5 1000 : (162.5...170.5) cm3 : 8.00 Spread 1000 : (12.00) RATED SPEED 1st version Control Lever position degrees: 112...124 Testina: 1st rack travel in: 12.80 rpm : 1295...1325 Speed 2nd rack travel in: 4.00 Speed rpm : 1465...1475 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 66...78 Testing: Speed rpm Minimum rack trave: 9.80 rpm : 420 Rack travel in mm : 5.60...6.00 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 14.20...14.30 rpm : 800 2nd speed Rack travel in m: 13.00...13.40 3rd speed rpm: 1250 Rack travel in m: 13.80...14.00 Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 1150 Pressure hPa : 1200 Rack travel mm : 14.20...14.30

Measurement 1/min: 1150 Speed 1st pressure hPa : -Rack travel in m: 11.10...11.50 2nd pressure hPa : 375
Rack travel in m: 12.10...12.20
3rd pressure hPa : 500

Rack travel in m: 13.10...13.50 START CUT-OUT 1/min: 315 (325) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 144.0...150.0 1000 s: (141.0...153.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1150 Del.quaritity cm3/: 106.5...110.5 1000 s: (104.5...112.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 1295...1325 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.50...14.50 LOW IDLE Speed rpm : 420
Rack travel in mm : 5.60...6.00
Del.quantity cm3/ : 10.0...16.0
1000 s: (8.0...18.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C. # 3921922 Delivery-valve spring pre-tension =

6.30...6.40 mm. Permissible alteration from 6.00...6.70

Start-of-delivery blocking 5,75° after start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 11.6.94 Replaces Test oil : ISC-4113 Combination no. : 0 402 736 849 Injection pump Pump designation PES6P120A720/3LS7251 EP type number : 0 412 726 860 Governor Governor design. : RQV300...1000PA962 -12K Governer no. : 0 421 815 407 Customer-spec. information Customer : MAN Engine : D2866LF09 1st version kW : 398.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8

Test lines : 1 680 750 089 Outside diameter x Wall thickness x Lenath mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY **G28**

Prestroke mm : 4.80...4.90 : (4.75...4.95) Rack travel in mm : 15.00...16.00 Firing order : 6- 2- 4- 1- 5- 3 Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.30(0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm:: 900 Rack travel in mm : 13.90...14.00 Del.guantity cm3/: 29.3...29.5 100 s: (29.0...29.8) Spread cm3 : 0.8100 s: (1.2) 2nd speed rpm : 300 Rack travel in mm : 5.0...5.4 Del.quantity cm3/ : 2.9...3.5 100 s: (2.6...3.8) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed 300 rpm : travel mm 1.29...1.79 374 2nd speed rpm : 2.31...2.81 travel mm 3rd speed rpm : 480 travel mm : 3.40...3.90 4th speed rpm : 769 travel mm : 6.70...7.20 : 1060 5th speed rpm travel mm : 10.14...10.64 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1120 Speed Rack travel in mm : 10.50...14.50 FULL LOAD DELIV. AT FULL LOAD STOP

Test pressure, bar: 25...27

1st version 2nd pressure hPa : 220 Rack travel in m: 9.40...9.5080 Speed rpm: 900 Aneroid pressure h: 1300 3rd pressure hPa : 720 Del.quantity : 293.0...298.0) Rack travel in m: 11.70...12.10 cm3 : 10.00START CUT-OUT 1000 : (14.00) 1/min: 240 (260) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 296...304 1st version Aneroid pressure h: 1300 Speed rpm : 1000 Del.quantity cm3/ : 266.0...272.0 Testing: 1st rack travel in: 12.40 rpm : 1040...1050 Speed 1000 s: (263.0...275.0) 2nd rack travel in: 4.00 Ameroid pressure h: 1300 rpm : 1125...1155 Speed Speed rpm : 750 Del.quantity cm3/: 284.0...290.0 1000 s: (281.0...293.0) 4th rack travel in: 1250 Speed rpm : 0.00...1.00Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 168.0...171.0 1000 s: (165.0...173.0) LOW IDLE 1 Control lever position degrees: 248...256 Testing: Sceed rom : 200 **BREAKAWAY** Minimum rack trave: 6.70 rpm : 300 Speed 1st version Rack travel in mm : 5.10...5.30 1mm rack travel less than CONSTANT REGULATION full load rack tr: 12.40 Speed rpm : 270...390 Speed rpm : 1040...1050 TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 rpm : 100 Rack travel in m: 13.90...14.00 Del.quantity cm3/: 195.0...225.0 1000 s: (191.0...229.0) 2nd speed rpm : 1000 Rack travel in m: 13.40...13.60 3rd speed rpm : 750 LOW IDLE Rack travel in m: 13.30...13.50 Speed rpm : 300 Rack travel in mm : 5.00...5.40 Del.quantity cm3/ : 29.0...35.0 Aneroid/Altitude Compensator Test 1000 s: (26.0...38.0) cm3 : 8.00 Spread 1st version 1000 s: (12.00) Setting Speed : 900 rpm Remarks: Pressure hPa : 1300 : MAN-NR. 3-7373 Rack travel mm : 13.90...14.00 Setting and blocking of pointer of Measurement start-of-delivery sensor on cyl. 6 Speed 1/min: 900 start of delivery 1st pressure hPa : -

Rack travel in m: 9.00...9.20

Note remarks

Test sheet : CUM : 4.6.94 Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 736 851

Injection pump

Pump designation : PES6P120A120RS7332 EP type number : 0 412 726 909

Governor

: RQV350...1000PA964 Governor design.

-24K

: 0 421 815 411 Governer no.

Customer-spec. information Customer : CDC

: 6CTA-A Engine

: 205.0 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.8Spread

100 s: (1.2)

2nd speed rpm : 350

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.4...3.0

100 s: (2.2...3.2)

Spread cm3 : 0.4100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.80...2.00 travel mm

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

: 5.10...5.50 rpm : 1000 travel mm

4th speed

travel mm : 8.10...8.30

5th speed rpm : 1200

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1200

H02

Del.quantity : 234.0...239.0) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 13.50 rpm : 1140...1170 Speed 2nd rack travel in: 4.00 Speed rpm : 1295...1305 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 63...75 Testing: Speed rpm : 275 Minimum rack trave: 8.20 rpm : 350 Rack travel in mm : 6.70...5.90 CONSTANT REGULATION rpm : 335...515 Speed TORQUE CONTROL. Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 15.10...15.20 2nd speed rpm : 650 Rack travel in m: 13.50...13.90 3rd speed rpm : 1100 Rack travel in m: 14.50...14.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rpm Pressure hPa : 1200 : 15.10...15.20 Rack travel mm Measurement 1/min: 1000 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.70

START CUT-OUT 1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 650 Del.quantity cm3/: 207.5...213.5 1000 s: (204.5...216.5) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1000 Del.quantity cm3/ : 94.0...98.0 1000 s: (92.0...100.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.50 Speed rpm : 1140...1170 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 11.00...12.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.70...6.90 Del.quantity cm3/ : 24.0...30.0 1000 s: (22.0...32.0) Spread cm3 : 8.001000 s: (12.00) Remarks: : C.D.C. # 3927924 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Rack travel in m: 13.30...13.70

2nd pressure hPa : 370

3rd pressure hPa : 825

Rack travel in m: 10.70...10.80

Note remarks

Test sheet : CUM Edition : 4.6.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 736 852

Injection pump

Pump designation : PES6P120A120RS7332

EP type number : 0 412 726 909

Governor

Governor design. : RQV350...900PA964

-25K

Governer no. : 0 421 815 418

Customer—spec. information Customer : CDC

Engine : 6CTA-A

1st version kW : 205.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

(3.90...\alpha.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 15.20...15.30

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350

Rack travel in mm : 6.6...6.8

Del.quantity cm3/: 2.3...2.9

100 s: (2.1...3.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 600

travel mm : 5.20...5.60

4th speed rpm: 1000

travel mm : 8.40...8.60

5th speed rpm: 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Aneroid pressure h: 1200

Del.quantity : 238.0...240.0 1000 : (235.0...243.0) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 113...125 Testina: 1st rack travel in: 13.90 rpm : 1055...1085 Speed 2nd rack travel in: 4.00 rpm : 1215...1225 Speed 4th rack travel in: 1400 Speed : 0.00...1.00 rom LOW IDLE 1 Control Lever position degrees: 63...75 Testing: Speed : 275 rpm Minimum rack trave: 8.10 Speed rpm : 350 Rack travel in mm : 6.60...6.80 CONSTANT REGULATION Speed rom : 335...515 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version : 900 1st speed rpm Rack travel in m: 15.20...15.30 rpm : 650 2nd speed Rack travel in m: 14.00...14.40 rpm : 1000 3rd speed Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rom hPa : 1200 Pressure Rack travel mm : 15.20...15.30 Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.70 2nd pressure hPa : 370 Rack travel in m: 10.70...10.80 3rd pressure hPa : 825

Rack travel in m: 13.20...13.60 START CUT-OUT Speed 1/min : 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 650 Speed rpm Del.quantity cm3/: 221.0...227.0 1000 s: (218.0...230.0) cm3 : 8.00Spread 1000 s: (12.0) Ameroid pressure h: -Speed rpm : 1000 Del.quantity cm3/ : 94.0...98.0 1000 s: (92.0...100.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 1055...1085 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 10.60...11.60 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 23.0...29.0 1000 s: (21.0...31.0) Spread cm3 : 8.001000 s: (12.00) Remarks: : C.D.C. # 3927923 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 11.6.94 Edition : 04.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 919 Injection pump Pump designation : PES6P120A720LS7237 EP type number : 0 412 726 911 Governor Governor design. : RQ300/1100PA1013-4 Governer no. : 0 421 801 711 Customer-spec. information Customer : MERCEDES-BENZ Engine : 0M447 hA : 184.0 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Openina . : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter

x Wall thickness x Length mm : 8.00X2.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-Phasing 0-60-120-180-240-300 Tolerance $+ - \circ : 0.30 (0.75)$ Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 13.75...13.85 Del.quantity cm3/: 20.3...20.5 100 s: (20.0...20.8) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 300 Rack travel in mm : 5.60...6.20 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) cm3 : 0.8 Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 600 Rack travel in mm: 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 1400 : 203.0...205.0 Del.quantity 1000 : (200.0...208.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

H06

Testing: 1st rack travel in: 12.80 rpm : 1145...1161 Speed 2nd rack travel in: 4.00 rpm : 1245...1275 Speed 4th rack travel in: 1350 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.9 Testina: Speed rpm : 200 Minimum rack trave: 9.00 Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 355...395 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 600 Pressure Rack travel mm : 12.65...12.75 Measurement Speed $1/\min : 500$ 1st pressure hPa : 950 Rack travel in m: 13.35...13.55 2nd pressure hPa : -Rack travel in m: 11.90...12.20 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 800 Del.quantity cm3/: 207.0...211.0 1000 s: (204.0...214.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 144.0...146.0 1000 s: (141.0...149.0)

> cm3 : 8.001000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1145...1161

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

H07

Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC : 4.6.94 Edition Replaces Test oil : ISO-4113 : 0 402 746 968 Combination no. Injection pump Pump designation : PES6P120A720RS7321 EP type number : 0 412 726 906 Governor Governor design. : RQV325...975PA944 -16K : 0 421 815 390 Governer no. Customer-spec. information Customer : MACK Engine : E7-250A 1st version kW : 180.0 : 1950 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 084 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 103 assembly Opening | : 207...210 pressure, bar Orifice plate : 0,7 diameter mm

Test lines : 1 680 750 008 Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 11.00...13.00 Firing order : 1-5- 3- 6-Phasing 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 975 Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 26.9...27.1 100 s: (26.6...27.4) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 340.0Rack travel in mm: 4.7...5.1 Del.quantity cm3/: 3.7...4.3 100 s: (3.5...4.5) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 1st speed : 1.40...1.60 travel mm 2nd speed rpm : 450 : 2.80...3.20 travel mm rpm : 950 3rd speed : 7.90...8.10 travel mm 4th speed rpm : 1200 travel mm : 10.20...10.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 975 Aneroid pressure h: 1200 : 269.5...271.5 Del.quantity 1000 : (266.5...274.5) : 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 103...115

Testina:

1st rack travel in: 11.90

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 56...68

Testing:

Speed rpm Minimum rack trave: 6.00

: 340 rpm

Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

Speed : 350...500 rpm

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 12.90...13.00

rpm : 600 2nd speed

Rack travel in m: 12.50...12.70 ed speed rpm : 500

3rd speed

Rack travel in m: 11.60...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 975 rpm hPa : 1200 Pressure

Rack travel mm : 12.50...13.00

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.30

2nd pressure hPa : 330

Rack travel in m: 9.70...9.80

3rd pressure hPa : 590

Rack travel in m: 11.50...11.90

START CUT-OUT

1/min: 250 (255) Speed

HD9

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 302.0...308.0

1000 s: (299.0...311.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1200

Speed rpm : 875

Del.quantity cm3/: 199.0...201.0 * 1000 s: (150.0...172.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 189.0...193.0 1000 s: (187.0...195.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340 Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P6

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC Edition : 4.6.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 969

Injection pump

Pump designation : PES6P120A720RS7321

EP type number : 0 412 726 906

Governor

: RQV325...875PA944 Governor design.

-17K

: 0 421 815 391 Governer no.

Customer-spec. information Customer : MACK

Engine : EM7-250

1st version kW : 187.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 26.8...27.0

100 s: (26.5...27.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm: 340.02nd speed Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 3.1...3.7

100 s: (2.9...3.9)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.40...1.60 travel mm

2nd speed : 450 rpm travel mm : 3.30...3.70

3rd speed : 700 rpm

: 7.90...8.10 travel mm 4th speed : 900 rpm

: 9.40...9.60 travel mm

rpm : 1050 5th speed

: 10.60...11.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 268.5...270.5

1000 : (265.5...273.5)

H10

Spread

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing:

1st rack travel in: 11.40

rpm : 915...925 Speed

2nd rack travel in: 4.00

rpm : 1035...1065 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 61...69

Testing:

Speed rpm : 275

Minimum rack trave: 6.00 rpm : 340

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpn: : 350...500 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 12.40...12.50

2nd speed rpm : 510

Rack travel in m: 13.10...13.30

3rd speed rpm : 400 Rack travel in m: 12.00...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 510 rpm Pressure hPa : 1200

: 13.10...13.30 Rack travel mm

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 285

Rack travel in m: 9.90...10.00

3rd pressure hPa : 570

Rack travel in m: 12.10...12.50

START CUT-OUT

Speed

1/min: 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 510 rpm

Del.quantity cm3/: 342.0...348.0

1000 s: (339.0...351.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 181.0...185.0

1000 s: (179.0...187.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rbm : 100

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 31.0...37.0

1000 s: (29.0...39.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P2

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MAC Test sheet Edition : 4.6.94 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 970

Injection pump

Pump designation : PES6P120A720RS7321

EP type number : 0 412 726 906

Governor

Governor design. : RQV325...875PA944

-17K

Governer no. : 0 421 815 392

Customer-spec. information Customer : MACK

Engine : EM7-275

1st version kW *i* 202.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 29.2...29.4

100 s: (28.9...29.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 340.0Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 3.7...4.3

100 s: (3.5...4.5)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.40...1.60 travel mm

2nd speed : 450 rpm : 3.30...3.70 travel mm

3rd speed : 700 rpm

: 7.90...8.30 travel mm

4th speed : 900 rpm

9.40...9.60 travel mm

5th speed : 1050 rpm

travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 272.3...277.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 112...124

Testina:

1st rack travel in: 12.40 rpm : 915...925 Speed

2nd rack travel in: 4.00

Speed rpm : 1055...1085

4th rack travel in: 1200

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 59...71

Testina:

Speed rpm : 275 Minimum rack trave: 6.00 Speed rpm : 340 Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 330...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 13.40...13.50

2nd speed rpm : 510

Rack travel in m: 14.10...14.30

3rd speed rpm : 600

Rack travel in m: 14.20...14.40

rpm : 450 4th speed

Rack travel in m: 13.20...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 510 hPa : 1200 Speed rpm Pressure

Rack travel mm : 14.10...14.30

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 310

Rack travel in m: 10.10...10.20

3rd pressure hPa : 635

Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min: 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 510 Speed

rpm

Deliquentity cm3/: 381.0...387.0 1000 s: (378.0...390.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 183.0...187.0

1000 s: (181.0...189.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 340 Speed

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 37.0...43.0

1000 s: (35.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P4

Note remarks

Test sheet : MAC Edition : 4.6.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 971

Injection pump

Pump designation : PES6P120A720R37321

EP type number : 0 412 726 906

Governor

: RQV325...975PA944 Governor design.

-19K

Governer no. : 0 421 815 393

Customer-spec. information Customer : MACK

Engine : E7-300A

: 224.0 1st version kW : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 11.00...13.00

: 1-5-3-6-2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 975

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 27.4...27.6

100 s: (27.1...27.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 340.0 Rack travel in mm: 4.7...5.1 Del.quantity cm3/: 2.8...3.4 100 s: (2.6...3.6)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.40...1.60 travel mm

2nd speed : 450 rpm

: 2.70...3.30 travel mm

3rd speed : 950 rpm

travel mm : 7.90...8.10

4th speed : 1200 rpm

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 975 Speed Aneroid pressure h: 1200

Del.quantity : 274.5...276.5

1000 : (271.5...279.5)

: 5.00 Spread cm3

1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 110...122

Testina:

1st rack travel in: 12.00

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 56...68

Testina:

Speed : 275 rpm

Minimum rack trave: 6.00

: 340 Speed rpm

Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 975 1st speed

Rack travel in m: 13.00...13.10

2nd speed rpm : 600

Rack travel in m: 12.20...12.40

3rd speed rpm : 500

Rack travel in m: 11.20...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

: 975 Speed rpm

Pressure hPa : 1200

Rack travel mm : 13.00...13.10

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90 2nd pressure hPa : 325 Rack travel in m: 9.40...9.50

3rd pressure hPa : 640

Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min: 250 (255)

H15

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600

Del.quantity cm3/: 285.5...291.5 1000 s: (282.5...294.5)

: 8.00 Spread cm3

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 169.0...173.0 1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 340 Speed

Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 28.5...34.5

1000 s: (26.5...36.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P8

Note remarks

Test sheet : MAC : 4.6.94 Edition Replaces

Test oil : ISO-4113

: 0 402 746 972 Combination no.

Injection pump

Pump designation : PES6P120A720RS7321 EP type number : 0 412 726 906

Governor

Governor design. : RQV325...875PA944

-20K

Governer no. : 0 421 815 394

Customer-spec. information Customer : MACK

: EM7-300 Engine

: 224.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 103 assembly

Openina (

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 11.00...13.00

Firing order : 1-5-3-6-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 30.6...30.8

100 s: (30.3...31.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 340.0Rack travel in mm : 4.7...4.9 Del.quantity cm3/ : 3.7...4.3

100 s: (3.5...4.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325 1.40...1.60 travel mm

2nd speed rpm : 450 3.30...3.70 travel mm

3rd speed rpm 700

travel mm : 7.90...8.30

4th speed : 900 rpm

travel mm : 9.40...9.60 : 1050 5th speed

rpm travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 300.3...311.5)

H16

: 5.00 Spread cm3 1000 : (9.00)RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 13.00 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LCW IDLE 1 Control lever position degrees: 59...71 Testing: rpm : 275 Speed Minimum rack trave: 6.00 Speed rpm : 340 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION Speed rpm : 330...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 14.00...14.10 : 510 2nd speed **LDW** Rack travel in m: 14.60...14.80 3rd speed rpm : 575 Rack travel in m: 14.60...14 80 rpm : 450 4th speed Rack travel in m: 13.90...14.30 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm Pressure hPa : 1200 : 14.60...14.80 Rack travel mm

Measurement 1/min: 510 Speed

1st pressure hPa : -Rack travel in m: 8.80...9.20 2nd pressure hPa : 370 Rack travel in m: 10.30...10.40 3rd pressure hPa : 760

Rack travel in m: 13.30...13.70

START CUT-OUT

1/min: 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 • 510 rpm

Del.quantity cm3/: 396.0...401.0 1000 s: (392.0...404.0)

cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: ripm : 400 S⊃∈ed

Del.quantity cm3/: 185.5...189.5

1000 s: (183.5...191.5)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 13.00 rpm : 915...925 Speed

STARTING FUEL DELIVERY

Speed rpm:::100 Del.quantity cm3/::170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

cm3 : 8.00

Spread 1000 s: (12.00)

Remarks:

: MACK #

313GC5212-P10

Note remarks

Test sheet : MAC Edition : 6.6.94

keplaces

Test bil : ISO-4113

Combination no. : 0 402 746 973

Injection pump

Pump designation : PES6P120A720RS7321

EP type number : 0 412 726 906

Governor

: RQV325...900PA944 Governor design.

-21K

: 0 421 815 395 Governer no.

Customer-spec. information Customer : MACK

Engine : E7-350

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.75...2.85

: (2.70...2.90) Rack travel in mm : 11.00...13.00

Firing order

: 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 33.5...33.7

100 s: (33.2...34.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 340.02nd speed Rack travel in mm: 4.6...5.0

Del.quantity cm3/: 2.8...3.4 100 s: (2.6...3.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.40...1.60 travel mm

2nd speed rpm : 450

travel mm : 2.80...3.20

3rd speed rpm : 700

travel mm : 6.00...6.40

4th speed 900 rpm

travel mm 8.50...8.70

5th speed rom 1050

: 9.80...10.20 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del.quantity : 333.3...340.5)

: 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 110...122 Testing: 1st rack travel in: 13.50 rpm : 940...950 Speed 2nd rack travel in: 4.00 Speed rpm : 1105...1135 4th rack travel in: 1200 npm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 58...70 Testing: Speed rpm : 275 Minimum rack trave: 6.00 : 340 rpm Rack travel in mm : 4.60...5.00 CONSTANT REGULATION ricin : 350...500 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 14.50...14.60 : 625 2nd speed rpm Rack travel in m: 13.80...14.00 3rd speed rpm : 675 Rack travel in m: 13.70...14.10 rpm : 500 4th speed Rack travel in m: 11.90...12.70 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 900 hPa : 1200 Pressure Rack travel mm : 14.50...14.60 Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 8.40...8.80 2nd pressure hPa : 400 Rack travel in m: 9.80...9.90

Rack travel in m: 12.60...13.00 START CUT-OUT 1/min : 250 (255) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 625 rpm Del.quantity cm3/: 351.0...357.0 1000 s: (348.0...360.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 169.0...173.0 1000 s: (167.0...173.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 940...950 Speed STARTING FUEL DELIVERY Speed : 190 rpm Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 340 Rack travel in mm : 4.60...5.00 Del.quantity cm3/: 28.5...34.5 1000 s: (26.5...36.5) Spread cm3 : 8.001000 s: (12.00) Remarks: : MACK # 313GC5212-P12

3rd pressure hPa : 775

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : NAV Edition : 6.6.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 983 Injection pump Pump designation : PES6P12UA32URS7328 EP type number : 0 412 726 908 Governor Governor design. RQV350...1250PA1137K : 0 421 815 405 Governer no. Customer-spec. information Customer : NAVISTAR : DTA-408 Engine 1st version kW : 157.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 976 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

x Length mm : 8.00X2.50X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.85...2.95 : (2.80...3.00) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 12.70...12.80 Del.quantity cm3/: 16.0...16 2 100 s: (15.7...16.5) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.2...1.8 100 s: (1.0...2.0) Spread cm3 : 0.5100 s: (0.9) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 350 : 1.90...2.10 travel mm 2nd speed rpm : 500 : 4.10...4.50 travel mm 3rd speed rpm : 850 : 7.00...7.40 travel mm 4th speed : 1250 rpm travel mm : 9.50...9.70 5th speed : 1450 rpm travel mm : 11.00...11.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 1250

Del.quantity : 100.5...165.5)

Aneroid pressure h: 1500

Speed

: 5.00 Spread cm31000 : (9.00)RATED SPEED 1st version Control lever position degrees: 116...128 Testina: 1st rack travel in: 11.70 rpm : 1295...1325 Speed 2nd rack travel in: 4.00 rpm : 1450...1460 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 74...86 Testing: Speed magn Minimum rack trave: 7.50 rpm ; 350 Speed Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.70...12.80 2nd speed rpm : 850 Rack travel in m: 12.00...12.20 3rd speed rpm : 650 Rack travel in m: 11.30...11.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 rpm hPa : 1500 Pressure Rack travel mm : 12.70...12.80 Measurement 1/min: 1250 Speed 1st pressure hPa : -

Rack travel in m: 10.00...10.40

Rack travel in m: 10.80...10.90 3rd pressure hPa : 710 Rack travel in m: 11.80...12.20

2nd pressure hPa : 290

1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 850 Del.quantity cm3/: 152.0...158.0 (149.0...161.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250
Del.quantity cm3/ : 102.0...106.0
1000 s: (100.0...108.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1295...1325 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 110.0...150.0 1000 s: (100.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 12.5...18.5 1000 s: (10.5...20.5) Spread cm3 : 8.001000 s: (12.00) Remarks: : NAVISTAR #1823107c91

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PER : 07.06.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 236 005 Injection pump Pump designation PES6MW100/320/3RS151 EP type number : 0 413 206 018 Governor Governor design. RQV325...1300Mw133-1 : 0 420 083 984 Governer no. Customer-spec information Customer : PFR Engine : 180 TI : 134.0 1st version kl/ : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Opening. pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 4.95...5.05 Rack travel in mm : 12.0...14.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm : 1300Rack travel in mm : 14.6...14.7 Del.quantity cm3/: 14.0...14.2 100 s: (13.7...14.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 325.0Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 2.1...2.5 100 s: (1.85...2.75) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 ist speed : 1.45...1.95 travel mm 2nd speed rpm : 361 travel mm : 2.09...2.59 3rd speed : 500 rpm : 3.67...4.17 travel mm 4th speed : 881 rpm : 6.21...6.71 travel mm rpm : 1355 5th speed : 9.98...10.48 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1380 Speed Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300Aneroid pressure h: 900

Del. Quantity : 140.0...142.0 2nd pressure hPa : 250 1000 : (137.0...145.0) Rack travel in m: 10.25...10.35 Spread cm3: 4.00 3rd pressure hPa : 400 1000 : (7.50) Rack travel in m: 13.05...13.35 RATED SPEED START CUT-OUT 1st version Speed 1/min : 240 (270) Control Lever position degrees: 116...124 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 13.6 1st version rpm : 1340...1350 Speed Aneroid pressure h: 900 2nd rack travel in: 4.00 Speed : 800 rpm Del.quantity cm3/: 138.0...142.0 1000 s: (135.0...145.0) Speed rpm : 1460...1490 4th rack travel in: 1600 rpm : 0.0...1.0Speed Spread cm3 : 6.001000 s: (9.0) LOW IDLE 1 Aneroid pressure h: 900 Control lever Speed rpm : 500 Del.quantity cm3/: 116.0...120.0 1000 s: (113.0...123.0) position degrees: 68...76 Setting point w/out bumper spring Speed : 325 rpm Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 68.0...70.0 1000 s: (66.0...72.0) Rack travel in mm: 5.8 Testing: Speed : 200 rpm Minimum rack trave: 8.0 Speed rpm : 325
Rack travel in mm : 5.7...5.9 **BREAKAWAY** 1st version TORQUE CUNTROL 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 1300 full load rack tr: 13.6 Rack travel in m: 14.6...14.7 rpm : 1340...1350 Speed 2nd speed : 800 rjom Rack travel in m: 13.25...13.45 od speed rpm : 500 Rack travel in m: 11.35...11.55 STARTING FUEL DELIVERY 3rd speed : 1000 rpm ith speed Speed rpm Del.quantity cm3/: 78.0...92.0 1000 s: (75.0...95.0) Rack travel in m: 14.1...14.4 5th speed rpm : 700 Rack travel in m: 12.55...12.85 LOW IDLE Aneroid/Altitude Speed rpm : 325
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 21.0...25.0 Compensator Test 1st version 1000 s: (18.5...27.5) Setting cm3 : 3.50Spread Speed rpm : 1300 1000 s: (5.00) Pressure hPa : 900 Rack travel mm : 14.3...14.4 Remarks: Measurement Speed 1/min: 1300 Start-of-delivery blocking 46.5° before start of delivery of cylinder 1 1st pressure hPa : -Rack travel in m: 9.1...9.3

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB Edition : 04.05.94 Replaces

Test oil : ISO-4113

Combination no. : 0 403 244 033

Injection pump Pumo designation PES4MW1007720RS1519-

: 0 413 204 017 EP type number

Governor

Governor design. : RQV300...1300MW132-1

Governer no. : 0 420 083 292

Cust. part no. : 0240748202

Customer-spec. information Customer : MB

Engine : 0M364LA

: 103.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 688 901 101 assembly

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.50...4.60 Prestroke mm : (4.45...4.65)

Rack travel in mm : 21.00

: 1-3-4-2 Firing order

Phasina : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.85...13.95

Del.quantity cm3/: 12.5...12.7

100 s: (12.2...13.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 3.8...4.0 Del.quantity cm3/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm3 : 0.3100 3: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 300

travel mm : 0.66...1.16

2nd speed : 629 rpm

: 2.9...3.4 travel mm

3rd speed : 820 rpm

: 3.84...4.34 travel mm

: 1150 4th speed rpm

: 5.7...6.2 travel mm : 1354

5th speed rpm

: 7.52...8.02 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1400

Del.quantity : 125.0...127.0 1000 : (122.0...130.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 12.9 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1440...1480 Speed 4th rack travel in: 1550 rpom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 67...75 Testing: Speed : 200 rom Minimum rack trave: 4.50 : 300 Speed MOC Rack travel in mm: 3.8...4.0 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 500 Pressure hPa : 1400 Rack travel mm : 13.85...13.95 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.0...11.2 2nd pressure hPa : 350 Rack travel in m: 11.5...11.7 3rd pressure hPa : 600 Rack travel in m: 13.0...13.2 START CUT-OUT Speed 1/min : 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 122.0...126.0 1000 s: (119.0...129.0) cm3 : 6.00Spread 1000 s: (9.0) Aneroid pressure h: 1400 Speed rpm : 600 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 66.0...68.0 1000 s: (64.0...70.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...145.0 1000 s: (137.0...148.0) LOW IDLE Speed rpm : 300 Rack travel in mm: 3.8...4.0 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.50) Remarks:

Speed

Aneroid pressure h: 1400

rpm

: 750

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 21.00...0.00 Test sheet Edition : 07.06.94 Firing order : 1-5-3-6-2-Replaces Test oil : ISO-4113 Combination no. : 0 403 246 031 Phasing Injection pump 0-60-120-180-240-300 Pump designation PES6MW100/720RS1515-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 021 BASIC SETTING Governor Governor design. : RQV300...1300MW125-4 1st speed rpm: 1300 Governer no. : 0 420 083 284 Rack travel in mm : 11.20...11.30 Cust. part no. : 0220745902 Del.quantity cm3/: 9.9...10.1 Customer-spec. information 100 s: (9.7...10.3) Customer : MB-NFZ Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.6) 1st version kW : 127.0 Rated speed : 2600 2nd speed rpm : 300.0Rack travel in mm : 3.45...3.75 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300Test nozzle holder : 1.15...1.65 travel mm assembly : 0 688 901 101 2nd speed rpm : 363 : 1.8...2.3 travel mm **Opening** 3rd speed rpm : 500pressure, bar : 207...210 : 2.74...3.24 travel mm rpm : 1354 4th speed travel mm : 8.43...8.93 Test lines : 1 680 750 089 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 8.00x2.50x600 Speed rpm : 1300 Aneroid pressure h: 1000 (A) Injection pump setting values : 99.0...101.0 Del.quantity Insp. values in parentheses 1000 : (97.0...103.0) cm3 : 3.50 Set equal delivery quant. Spread per values ____ 1000 : (6.00) BEGINNING OF DELIVERY RATED SPEED

H26

1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 10.2 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 62...70 Setting point w/out bumber spring : 300 rpm Rack travel in mm: 3.6 Testing: Speed npm : 200 Minimum rack trave: 4.50 Speed rpm : 300 Rack travel in mm : 3.45...3.75 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.2...11.3 2nd speed rpm : 750 Rack travel in m: 11.15,..11.35 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 1000 : 11.2...11.3 Rack travel mm Measurement 1/min: 500 Speed îst pressure hPa : -Rack travel in m: 8.0...8.2 2nd pressure hPa : 300 Rack travel in m: 8.7...8.9 3rd pressure hPa : 500 Rack travel in m: 10.1...10.3 START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 90.5...93.5 1000 s: (88.0...96.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 43.0...45.0 1000 s: (41.0...47.0) **BREAKAWAY** 1st version 1mm rack trave' less than full load rock tr: 10.2 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 3.45...3.75

Speed rpm : 300
Rack travel in mm : 3.45...3.75
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 5.20...5.30 : (5.15...5.35) Test sheet : MB Rack travel in mm : 21.00...0.00 Edition : 09.06.94 Firing order : 1-5- 3- 6- 2-Replaces Test oil : ISO-4113 Combination no. : 0 403 246 032 Phasing Injection pump 0-60-120-180-240-300 Pump designation PES6MW100/720RS1515-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 021 BASIC SETTING Governor Governor design. 1st speed rpm: 1300 RQV300...1300Mw125-5 Governer no. : 0 420 083 285 Rack travel in mm: 12.30...12.40 Cust. part no. : 0220746002 Del.quantity cm3/: 11.0...11.2 Customer-spec. information 100 s: (10.8...11.4) Customer : MB-NFZ Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.6) : 142.0 1st version kW 2nd speed rpm : 300.0 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6) Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300Test nozzle holder travel mm 1.2...1.6 assembly : 0 688 901 101 2nd speed rom : 500 travel mm : 2.7...3.3 Opening 1 rpm : 880 3rd speed pressure, bar : 207...210 : 4.9...5.1 travel mm 4th speed rpm : 1350 travel mm : 8.6...9.0 Test lines : 1 680 750 089 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 8.00x2.50x600 Speed rpm : 1300 Aneroid pressure h: 1100 (A) Injection pump setting values Del.quantity : 110.0...112.0 1000 : (108.0...114.0) Insp. values in parentheses Set equal delivery quant. : 3.50 Spread cm3 per values ____ 1000 : (6.00)BEGINNING OF DELIVERY RATED SPEED

H28

1st version Control lever position degrees: 112...120 Testing: ist rack travel in: 11.3 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 58...66 Setting point w/out bumper spring rpm Rack travel in mm: 3.8 Testina: Speed : 200 rpm Minimum rack trave: 5.00 : 300 Speed rom Rack travel in mm: 3.7...3.9 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.3...12.4 and speed rpm : 750 2nd speed rpm Rack travel in m: 12.25...12.45 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1100 Pressure : 12.3...12.4 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 8.35...8.55 2nd pressure hPa : 250 Rack travel in m: 9.1...9.3 3rd pressure hPa : 500 Rack travel in m: 10.8...11.0 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1100 Speed rpm : 750 Del.quantity cm3/ : 105.0...108.0 1000 s: (102.5...110.5) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 43.0...45.0 1000 s: (41.0...47.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.3 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 3.7...3.9 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.501000 s: (5.50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-Test sheet : 15.04.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 246 035 Phasing Injection pump 0-60-120-180-240-300 Pump designation PES6MW1007720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 020 BASIC SETTING Governor Governor design. : RQV300...1300MW132-2 1st speed rpm: 1300 : 0 420 083 293 Governer no. Rack travel in mm : 11.95...12.05 Cust. part no. : 0240744202 Del.quantity cm3/: 10.1...10.3 Customer-spec. information 100 s: (9.9...10.5) Customer : MB-NF7 Spread cm3 : 0.4: 0M366LA Engine 100 s: (0.7) : 125.0 1st version kW Rated speed : 2600 2nd speed rpm : 300.0Rack travel in mm: 3.7...3.9 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Test nozzle holder travel mm : 0.77...1.27 assembly : 0 688 901 101 2nd speed rpm : 490 travel mm : 2.0...2.5 rpm : 710 Opening 3rd speed pressure, bar : 207...210 travel mm : 2.78...3.28 4th speed rpm : 1100 : 4.51...5.01 travel mm Test lines : 1 680 750 089 rpm : 1353 5th speed : 6.45...6.95 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 8.00x2.50x600 x Length mm 1st version (A) Injection pump setting values Speed rpm : 1300 Insp. values in parentheses Aneroid pressure h: 1000 Del.quantity : (01.0....05.0) Set equal delivery quant. per values

1000 : (6.00)

BEGINNING OF DELIVERY

RATED SPEED 1st version Control Lever position degrees: 112...120 Testing: 1st rack travel in: 11.0 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1550 Speed rom : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 67...75 Setting point w/out bumper spring Speed rpm Testing: Speed : 200 rpm Minimum rack trave: 4.50 : 300 Speed rom Rack travel in mm: 3.7...3.9 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure : 11.95...12.05 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.7...9.9 2nd pressure hPa : 150 Rack travel in m: 10.25...10.45 3rd pressure hPa : 300 Rack travel in m: 11.25...11.45 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 5.501000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 93.5...96.5 1000 s: (91.0...99.0) Arieroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 52.0...54.0 1000 s: (50.0...56.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.0 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 110.0...120.0 1000 s: (107.0...123.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

Speed

1st version

Aneroid pressure h: 1000

rpm : 750 Del.quantity cm3/: 91.5...94.5 1000 s: (89.0...97.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Prestroke mm Test sheet : MB Edition : 11.05.94 Firing order Replaces Test oil : ISO-4113 Combination no. : 0 403 274 005 Phasing Injection pump Pump designation PES6MW100/720RS1519-EP type number : 0 413 204 017 BASIC SETTING Governor Governor design. 1st speed RSV350...1200Mw0A356 Governer no. : 0 420 085 231 : 0250740802 Cust. part no. Customer-spec. information : MB-NFZ Customer Spread : 0M364LA Engine 1st version kW : 103.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil Spread inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Speed Test nozzle holder : 0 688 901 101 assembly **Opening** pressure, bar : 207...210 1st version Test Lines : 1 680 750 089 Speed Outside diameter x Wall thickness x Length mm : 8.00X2.50X600 Spread (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version

Test pressure, bar: 30...32 : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 21.00...0.00 : 1-5-3-6-2-C-60-120-180-240-300 Tolerance $+ - ^{\circ}$: 0.50 (0.75) rpm : 1200Rack travel in mm : 13.75...13.85 Del.quantity cm3/: 12.4...12.6 100 s: (12.1...12.9) cm3 : 0.4100 s: (0.7) 2nd speed rpm : 350.0 Rack travel in mm : 3.8...4.0 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm: 0.3...0.7 Governor spring pre-tension Click setting x : 4.5FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1200 Aneroid pressure h: 1500 Del.quantity : 127.0...129.0 1000 : (124.0...132.0) cm3 : 4.00 1000 : (7.50) Control lever position degrees: 92...100

BEGINNING OF DELIVERY

Setting point:

Speed rom Rack travel in mm: 0.5

Testina:

1st rack travel in: 12.8

rpm : 1240...1250 Speed

4th rack travel in: 1400 Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 3.9

Testina:

Speed rpm : 100 Minimum rack trave: 19.0 Speed rpm : 350 Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 13.75...13.85 and speed rpm : 750

2nd speed

Rack travel in m: 13.7...13.9

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 rpm Pressure hPa : 1500

Rack travel mm : 13.7...13.9

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.4...10.6

2nd pressure hPa : 450

Rack travel in m: 11.05...11.25

3rd pressure hPa : 700

Rack travel in m: 12.6...12.8

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 750

1000 s: (126.0...136.0) cm3 : 6.00 Spread 1000 s: (9.0)

Del.quantity cm3/: 129.0...133.0

Aneroid pressure h: -Speed

rpm : 500 Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.8

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.8...4.0
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

J05

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

Edition : 11.05.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 274 006

Injection pump Pump designation : PES6MW100/720RS1519-

3

EP type number : 0 413 204 018

Governor

Governor design. : RSV350...1200MW0A356

Governer no. : 0 420 085 232

Cust. part no. : 0250740702

Customer-spec. information Customer : MB-NFZ

Engine : CM364LA

1st version kW : 77.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60

: (4.45...4.65)

Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-

4

Phasing :

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.95...12.05

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 350.0 Rack travel in mm : 3.8...4.0 Del.quantity cm3/ : 1.0...1.4

Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.3...0.7

Governor spring pre-tension Click setting x : 4.5

3

1st version

Speed rpm : 1200 Aneroid pressure h: 1500

Del.quantity : 101.0...103.0

FULL LOAD DELIV. AT FULL LOAD STOP

1000 : (99.0...105.0)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

: 800 Speed rpm Rack travel in mm: 0.5

Testing:

1st rack travel in: 11.0

rpm : 1240...1250 Speed

4th rack travel in: 1400 Speed rpm : 0.3...1.7

LOW IDLE 1 Control lever

position degrees: 62...70

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 3.9

Testina:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 350 Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200 Rack travel in m: 11.95 . 12.05

2nd speed rpm : 750

Rack travel in m: 11.9...12.1

Aneroid/Altitude Compensator Test

1st version

Settina

rpm : 500 hPa : 1500 Speed rpm Pressure

Rack travel mm : 11.9...12.1

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.7...10.9

2nd pressure hPa : 450

Rack travel in m: 11.05...11.25

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 : 750 Speed rpm

J07

Del.quantity cm3/: 93.5...96.5 1000 s: (91.0...99.0)

cm3 : 6.00

1000 s: (9.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 11.0

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0

1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm: 3.8...4.0

Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 4.50...4.60 : (4.45...4.65) Test sheet : MB Rack travel in mm : 21.00...0.00 Edition : 09.05.94 Firing order : 1-5- 3- 6- 2-Replaces Test oil : ISO-4113 Combination no. : 0 403 276 005 Phasing Injection pump 0-60-120-180-240-300 Pump designation : PES6MW1007720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$: 0 413 206 020 EP type number BASIC SETTING Governor Governor design. 1st speed rpm: 1200 RSV350...1200Mw0A355 : 0 420 085 228 Governer no. Rack travel in mm : 11.0...11.1 : 0250740102 Cust. part no. Del.quantity cm3/: 9.4...9.6 Customer-spec. information 100 s: (9.2...9.8) Customer : MB-NFZ Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.7) 1st version kW : 100.0 Rated speed : 2400 2nd speed rpm : 350.0 Rack travel in mm : 2.9...3.1 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm: 0.3...0.7 Test nozzle holder : 0 688 901 101 assembly Governor spring pre-tension Click setting x : 4.5Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1000 Outside diameter : 94.0...96.0 Del.quantity x Wall thickness 1000 : (92.0...98.0) x Length mm : 8.00X2.50X600 cm3 : 4.00Spread 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version Control lever BEGINNING OF DELIVERY position degrees: 92...100

Setting point:

Speed : 800 rom Rack travel in mm: 0.5

Testing:

1st rack travel in: 10.0

Speed rpm : 1240...1245 2nd rack travel in: 4.0

: 1300...1307 Speed rpm

4th rack travel in: 1400 Speed rpm : 0.3...1.7

LOW IDLE 1 Control lever

position degrees: 62...70 Setting point w/out bumper spring

: 350 rom Rack travel in mm: 3.0

Testina:

Speed rpm : 100 Minimum rack trave: 19.0 : 350 Speed rpm Rack travel in mm: 2.9...3.1

SET IDLE AUXILIARY SPRING

Speed rpm : 390 Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 11.0...11.1

: 750 2nd speed rpm

Rack travel in m: 10.95...11.15

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom Pressure hPa : 1000

Rack travel mm : 10.95...11.15

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.9...10.1

2nd pressure hPa : 300

Rack travel in m: 10.4...10.6 3rd pressure hPa : 380 Rack travel in m: 10.8...11.0

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 750

Del.quantity cm3/: 87.5...90.5 1000 s: (85.0...93.0) Spread cm3 : 5.50 1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 68.0...70.0

1000 s: (66.0...72.0)

BREAKAWAY

1st version

imm rack travel less than

full load rack tr: 10.0

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 2.9...3.1

Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 07.04.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 276 006 Injection pump Pump designation PES6MW100/720RS1517-EP type number : 0 413 206 020 Covernor Governor design. RSV350...12009W0A355 Governer no. : 0 420 085 229 Cust. part no. : 0250740202 Customer-spec. information Customer : MB-NF7 Engine : OMB66LA 1st version kW : 120.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 688 901 101 **Opening** pressure, bar : 207...210 Test lines : 1 680 750 089 Outside diameter x Wall thickness

Test pressure, bar: 30...32 : 4.50...4.60 Prestroke mm : (4.45...4.65) Rack travel in mm: 21.00...0.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 11.4...11.5 Del.quantity cm3/: 10.1...10.3 100 s: (9.9...10.5) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 350.0 Rack travel in mm: 3.2...3.4 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.3...0.7 Governor spring pre-tension Click setting x : 4.5 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 1000 : 101.0...103.0 Del.quantity 1000 : (99.0...105.0) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED 1st version

BEGINNING OF DELIVERY

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

Control lever

position degrees: 92...100

Setting point:

Speed : 800 rpm Rack travel in mm: 0.5

Testing:

1st rack travel in: 10.4

Speed rpm : 1240...1245 4th rack travel in: 1400 Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 3.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 350 Rack travel in mm : 3.2...3.4

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.4...11.5 2nd speed rpm : 750 Rack travel in m: 11.35...11.55

Aneroid/Altitude

Compensator Test

1st version

Settina

Speed rpm : 500

hPa : 1000 Pressure

Rack travel mm : 11.35...11.55

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.55...9.75

2nd pressure hPa : 350

Rack travel in m: 9.9...10.1

3rd pressure hPa : 530

Rack travel in m: 10.9...11.1

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 750

Del.quantity cm3/: 97.5...101.5 1000 s: (95.0...103.0)

cm3 : 5.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 62.0...64.0 1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.4

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 90.0...100.0

1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.2...3.4
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 30...32 Note remarks : 4.50...4.60 Prestroke mm Test sheet : (4.45...4.65) : MB Rack travel in mm : 21.00...0.00 Edition : 11.05.94 Replaces Firing order : 1-5-3-6-2-Test oil : ISO-4113 Combination no. : 0 403 276 007 Injection pump Phasing 0-60-120-180-240-300 Pump designation PES6MW100/720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 020 Governor BASIC SETTING Governor design. RSV350...1200Mw0A355 1st speed rpm: 1200 Governer no. : 0 420 085 230 Rack travel in mm : 12.95...13.05 : 0250740302 Del.quantity cm3/: 11.7...11.9 Cust. part no. Customer-spec. information 100 s: (11.5...12.1) Customer : MB-NF7 Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.7) 1st version kW : 140.0 Rated speed : 2400 rpm : 350.02nd speed Rack travel in mm: 3.2...3.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3Test oil Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve **GUIDE SLEEVE POSITION** : 1 419 992 198 Communication Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm : 0.3...0.7 Test nozzle holder : 0 688 901 101 Governor spring pre-tension assembly Click setting x : 4.5 **Opening** pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1000 Outside diameter : 117.0...119.0 Del.quantity 1000 : (115.0...121.0) x Wall thickness : 8.00x2.50x600 cm3 x Length mm Spread : 3.50 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

1st version

per values ____

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 800 Rack cravel in mm : 0.5

Testina:

1st rack travel in: 12.0

Speed rpm : 1240...1245 4th rack travel in: 1400

Speed riom : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 3.3

Testing:

mpm : 100 Speed Minimum rack trave: 19.0 rpm : 350 Speed

Rack travel in mm: 3.2...3.4

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 12.95...13.05

2nd speed rpm : 750

Rack travel in m: 12.9...13.1

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom hPa : 1000 Pressure

Rack travel mm : 12.9...13.1

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.55...9.75

2nd pressure hPa : 350 Rack travel in m: 9.9...10.1

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 750 Speed

cm3 : 5.50Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed (*pm : 50)
Del.quantity cm3/: 62.0...64.0
1000 s: (60.0...66.0)

Del.quantity cm3/: 113.5...116.5

1000 s: (111.0...119.0)

ERFAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.0

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 3.2...3.4 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm

control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 4.50...4.60 : (4.45...4.65) Note remarks Prestroke mm Test sheet Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-: 11.05.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 276 009 Phasing 0-60-120-180-240-300 Injection pump Pump designation PES6MW100/720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 019 BASIC SETTING Governor Governor design. : RSV350...1200MW0A357 1st speed rpm: 1200 Governer na. : 0 420 085 233 Rack travel in mm : 14.0...14.1 Cust. part no. : 0250740402 Del.quantity cm3/: 12.7...12.9 Customer-spec. information 100 s: (12.4...13.2) Customer : MB-NFZ cm3 : 0.4Spread Engine : 0M366LA 100 s: (0.7) 1st version kw : 155.0 2nd speed rpm : 350.0 Rack travel in mm : 3.8...4.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm: 0.3...0.7 Test nozzle holder : 0 688 901 101 assembly Governor spring pre-tension Click setting x : 4.5 Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1500 Outside diameter : 127.0...129.0 Del.quantity x Wall thickness 1000 : (124.0...132.0) x Length mm : 8.00x2.50x600 : 4.00 Spread cm3 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values _ 1st version Control lever

position degrees: 104...112

BEGINNING OF DELIVERY

Setting point: Speed : 800 rpm Rack travel in mm: 0.5 Testing: 1st rack travel in: 13.0 rpm : 1240...1245 Speed 2nd rack travel in: 4.0 Speed rpm : 1366...1370 4th rack travel in: 1450 Speed rpm : 0.3...1.7 LOW IDLE 1 Control Lever position degrees: 72...80 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 3.9 Testing: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 350 Speed Rack travel in mm: 3.8...4.0 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.0...14.1 2nd speed rpm : 750 Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 1500 Pressure Rack travel mm : 13.95...14.15 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.45...8.65 2nd pressure hPa : 350 Rack travel in m: 10.4...10.6 3rd pressure hPa : 750 Rack travel in m: 12.9...13.1 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1500 : 750 Speed rpm Del.quantity cm3/: 125.0...129.0 1000 s: (122.0...132.0) Spread 00.6: End 1000 s: (9.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 42.0...44.0 1000 s: (40.0...46.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.0 rpm : 1240...1245 Speed STARTING FUEL DELIVERY : 100 Speed יחכים Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE Speed rpm : 350

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 27.04.94 Replaces : ISO-4113 Test oil Phasing : 0 403 446 302 Combination no. Injection pump Pump designation : PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor 1st speed Governor design. : RQV300...1300MW50-24 Governer no. : 0 420 083 270 : 0220745202 Cust. part no. Customer-spec. information Customer : MB-NFZ Spread Engine : OM 366 A 1st version kW : 121.0 2nd speed : 2600 Rated speed TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 1st speed travel mm Test nozzle holder 2nd speed : 1 688 901 101 assembly travel mm 3rd speed Openina travel mm pressure, bar : 207...210 4th speed travel mm Test lines : 1 680 750 089 Outside diameter x Wall thickness Speed x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version per values _ Speed BEGINNING OF DELIVERY

Prestroke mm : 3.70...3.80
Rack *ravel in mm : 9.00...12.00 Firira order : 1- 5- 3- 6- 2-0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING rpm: 1300 Rack travel in mm : 10.9...11.0 Del.quantity cm3/: 8.8...9.0 100 s: (8.6...9.2) cm3 : 0.3100 s: (0.6) rpm : 300.0Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 : 9.4...10.0 rpm : 1350 : 8.5...8.7 rpm : 500 : 2.7...3.3 rpm : 300 : 1.2...1.6 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1300Aneroid pressure h: 700 Del.quantity : 88.0...90.0 1000 : (86.0...92.0)

Test pressure, bar: 30...32

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 108...116 Testing: 1st rack travel in: 9.95 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 rpm : 0.0...1.0Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.2 Testing: Speed : 200 rpm Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm: 1300
Rack travel in m: 10.9...11.0
2nd speed rpm: 750 Rack travel in m: 11.5...11.6 rpm : 1100 3rd speed Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure Rack travel mm : 11.5...11.6 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 200
Rack travel in m: 10.2...10.3
3rd pressure hPa : 300 Rack travel in m: 11.0...11.3 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 84.5...87.5 1900 s: (82.0...90.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 48.0..50.0 1000 s: (46.0...52.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.95 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed rpm : 300 Rack travel in imm: 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

Edition

: 27.04.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 302

Injection pump

Pump designation : PESSMW100/720RS1131

EP type number

: 0 413 406 123

Governor

Governor design. RQV300...1300Mw50-24

Governer no.

: 0 420 083 270

Cust. part no.

: 0220745202

Customer-spec. information Customer

: MB-NFZ

Engine

: OM 366 A

1st version kW

: 121.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

: 3.70...3.80

: 1-5- 3- 6- 2-

Rack trayel in mm : 9.00...12.00

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 10.9...11.0

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.1...6.3 Dal.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

: 9.4...10.0 travel mm

rpm : 1350 2nd speed

travel mm : 8.5...8.7

: 500 3rd speed rpm

: 2.7...3.3 travel mm

: 300 4th speed rpm

: 1.2...1.6 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed

rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 108...116 Testing: 1st rack travel in: 9.95 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 Speed rpm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed : 300 rpm Rack travel in mm: 6.2 Testina: Speed : 200 rpm Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.9...11.0 2nd speed rpm : 750 Rack travel in m: 11.5...11.6 3rd speed rpm : 1100 Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 700 Pressure : 11.5...11.6 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 200 Rack travel in m: 10.2...10.3 3rd pressure hPa : 300 Rack travel in m: 11.0...11.3

1st version Ameroid pressure h: 700 Speed rpm : 750
Del.quantity cm3/: 84.5...87.5
1000 s: (82.0...90.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.95 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed rpm : 300 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MB

Edition

: 27.04.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 303

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number

: 0 413 406 123

Governor

Governor design. :RQV300...1300MW50-24

Governer no.

: 0 420 083 270

Cust. part no.

Customer-spec. information

Customer

: MB-NFZ

Engine

: OM 366 A

1st version kW

: 121.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening .

pressure, bar

: 207...210

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Lenath mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 10.9...11.0

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.1...6.3

Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

: 9.4...10.0 travel mn

rpm : 1350 2nd speed

: 8.5...8.7 travel mm

3rd speed

rpm : 500 : 2.7...3.3 rpm : 300 travel mm

4th speed

travel mm : 1.2...1.6

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

750

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 108...116 Testing: 1st rack travel in: 9.95 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 rpm : 0.0...1.0Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: Speed : 200 rpm Minimum rack trave: 8.0 Speed rpm Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.9...11.0 2nd speed rpm : 750 Rack travel in m: 11.5...11.6 rpm : 1100 3rd speed Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 11.5...11.6 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 200 Rack travel in m: 10.2...10.3
3rd pressure hPa : 300
Rack travel in m: 11.0...11.3 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 84.5...87.5 1000 s: (82.0...90.0) : 5.00 Spread cm3 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.95 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE rpm : 300 Speed Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.00) Remarks:

J21

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 3.70...3.80 Prestroke mm Rack travel in mm : 9.00...12.00 Test sheet : MB Firing order : 1-5-3-6-2-: 27.04.94 Edition Replaces Test oil : ISO-4113 : 0 403 446 303 Combination no. Phasing 0-60-120-180-240-300 Injection pump Pump designation Tolerance $+ - ^{\circ} : 0.50 (0.75)$ PES6MW100/720RS1131-BASIC SETTING EP type number : 0 413 406 165 Governor 1st speed rpm: 1300 Governor design. RQV300...1300MW50-25 Rack travel in mm : 12.9...13.0 Governer no. : 0 420 083 271 Del.quantity cm3/: 9.5...9.7 : 0220745302 Cust, part no. 100 s: (9.3...9.9) Customer-spec. information Customer : MB-NFZ cm3 : 0.3Spread Engine : 0M 366 LA 100 s: (0.6) : 155.0 1st version kW 2nd speed rpm : 300.0Rated speed : 2600 Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 1450 1st speed : 9.4...10.0 travel mm Test nozzle holder : 1350 2nd speed rpm assembly : 1 688 901 101 travel mm : 8.5...8.7 : 500 3rd speed rpm Opening travel mm : 2.7...3.3 pressure, bar : 207...210 4th speed : 300 rpm travel mm : 1.2...1.6 Test lines : 1 680 750 089 GUIDE SLEEVE POSITION Control-lever position Outside diameter Degree: -1 x Wall thickness rpm : 1350 Speed x Length mm : 8.00x2.50x600 Rack travel in mm : 15.2...17.8 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values ____ rpm : 1300 Speed Aneroid pressure h: 1000

BEGINNING OF DELIVERY

: 95.0...97.0 Del.quantity 1000 : (93.0...99.0) : 3.50 Spread cm3 1000 : (6.00) 1st version RATED SPEED Speed 1st version Control lever position degrees: 112...120 Spread Testing: 1st rack travel in: 11.95 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 Speed MOLT : 0.0...1.0 **BREAKAWAY** LOW IDLE 1 1st version Control lever position degrees: 74...82 Setting point w/out bumper spring : 300 Speed rpm Speed Rack travel in mm: 6.5 Testing: Speed : 200 rpm Minimum rack trave: 8.0 Speed : 300 rom Rack travel in mm: 6.4...6.6 TORQUE CONTROL LOW IDLE Torque control curve - 1st version 1st speed rpm : 1300 Speed Rack travel in m: 12.9...13.0 : 750 2nd speed rpm Rack travel in m: 12.85...13.05 3rd speed rpm : 500 Spread Rack travel in m: 10.5...10.6 Aneroid/Altitude Remarks: Compensator Test 1st version Setting Speed man : 500 hPa : 1000 Pressure Rack travel mm : 12.9...13.0 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.5...10.6 2nd pressure hPa : 200 Rack travel in m: 11.2...11.3
3rd pressure hPa : 350 Rack travel in m: 12.4...12.7

FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 1000 : 750 rpm Del.quantity cm3/: 84.0...88.0 1000 s: (82.0...90.0) cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 41.0...43.0 1000 s: (39.0...45.0) 1mm rack travel less than full load rack tr: 11.95 rpm : 1340...1350 STARTING FUEL DELIVERY : 100 rpm Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) : 300 rpm Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.501000 s: (5.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 13.5 : 1-5- 3- 6- 2-Firing order Note remarks Test sheet : DAF Edition : 28.04.94 Replaces Phasing 0-60-120-180-240-300 Test oil : ISO-4113 Combination no. : 0 403 446 309 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1227 EP type number : 0 413 406 215 1st speed rpm: 1000 Governor Governor design. : RQV325...1300MW126 Rack travel in mm : 13.0...13.1 Governer no. : 0 420 083 279 Del.quantity cm3/: 11.0...11.2 Cust. part no. : 1249951 100 s: (10.8...11.4) Customer-spec. information : DAF Customer cm3 : 0.3Spread Engine : NS156L 100 s: (0.6) 2nd speed rpm : 325.0 Rack travel in mm : 4.4...4.6 1st version kW : 156.0 Rated speed : 2600 Del.quantity cm3/ : 0.7...1.1 TEST BENCH REQUIREMENTS 100 s: (0.45...1.35) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 1350 1st speed travel mm : 8.4...8.8 Test nozzle holder 2nd speed : 875 rpm assembly : 1 688 901 101 : 4.9...5.1 travel mm 3rd speed : 500 rpm Opening : 2.7...3.3 travel mm pressure, bar : 207...210 4th speed : 325 rpm : 1.5...1.9 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Speed rpm : 1350 Rack travel in mm : 15.2...17.8 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values 1st version Insp. values in parentheses rpm : 1000 Speed Set equal delivery quant. Aneroid pressure h: 1000 : 110.0...112.0 per values Del.quantity 1000 : (109.0...114.0) BEGINNING OF DELIVERY : 3.50 Spread cm3 Test pressure, bar: 30...32 1000 : (6.00) Prestroke mm : 3.00...3.10 RATED SPEED

J24

1st version Control lever position degrees: 119...127 1st rack travel in: 12.05 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 rpm : 0.0...1.0 Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point wout bumper spring Speed MCM : 325 Rack travel in mm: 4.5 Testina: Speed rpm : 225 Minimum rack trave: 6.0 Speed rpm : 325 Rack travel in mm : 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.0...13.1 2nd speed rpm : 1300 Rack travel in m: 12.95...13.15 3rd speed rpm : 600 Rack travel in m: 10.0...10.2 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 1000 Pressure Rack travel mm : 13.0...13.1 Measurement Speed $1/\min : 600$ 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS 1st version

rpm : 1300 Speed Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...110.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: --Speed rpm : 600 Del.quantity cm3/: 63.0...65.0 1000 s: (62.0...67.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.05 Speed rpm : 1324...1340 LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.00)

:

Remarks:

J25

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 13.5 Firing order : 1-5-3-6-2-Note remarks Test sheet : DAF Edition : 31.05.94 Replaces Phasing 0-60-120-180-240-300 Test oil : ISO-4113 Combination no. : 0 403 446 309 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1227 EP type number : 0 413 406 215 1st speed rpm : 1000Governor Governor design. : RQV325...1300MW126 Rack travel in mm : 13.0...13.1 : 0 420 083 279 Governer no. Del.quantity cm3/: 11.0...11.2 Cust. part no. : 1249951/5 100 s: (10.8...11.4) Customer-spec. information Customer : DAF Spread cm3 : 0.3Engine : NS156L 100 s: (0.6) 1st version kW : 156.0 2nd speed rpm : 325.0 Rated speed : 2600 Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 0.7...1.1 TEST BENCH REQUIREMENTS 100 s: (0.45...1.35) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 1st speed rpm : 325 : 1.42...1.92 travel mm Test nozzle holder 2nd speed rpm : 363 assembly : 1 688 901 101 travel mm : 1.8...2.3 3rd speed : 490 rom Opening. travel mm : 2.68...3.18 pressure, bar : 207...210 4th speed : 877 rpm : 4.75...5.25 travel mm 5th speed : 1345 Lbw Test lines : 1 680 750 008 : 8.33...8.83 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness rpm : 1350 Speed x Length mm : 6.00x2.00x600 Rack travel in mm : 15.2...17.8 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values Speed rpm : 1000 Aneroid pressure h: 1000 BEGINNING OF DELIVERY Del.quantity : 110.0...112.0 1000 : (109.0...114.0) Test pressure, bar: 30...32 : 3.50 Spread cm3 Prestroke mm : 3.00...3.10 1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 119...127 Testing: 1st rack travel in: 12.05 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 rpm : 0.0...1.0 Speed LOW IDLE 1 Control Lever position degrees: 78...86 Setting point w/out bumper spring : 325 Speed rpm Rack travel in mm: 4.5 Testing: : 225 Speed rpm Minimum rack trave: 6.0 Speed rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 13.0...13.1 2nd speed rpm : 1300 Rack travel in m: 12.95...13.15 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 600 hPa : 1000 Pressure Rack travel mm : 13.0...13.1 Measurement 1/min: 600 Speed 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS 1st version

: 1300 Speed rpm Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...110.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 63.0...65.0 1000 s: (62.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.05 Speed rpm : 1324...1340 LOW IDLE rpm : 325 Speed

Rack travel in mm: 4.4...4.6

Del.quantity cm3/: 7.0...11.0

1000 s: (4.5...13.5)

Spread cm3: 3.50

1000 s: (5.00)

Remarks:

J27

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF Edition : 28.04.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 310 Injection pump Pump designation PES6MW100/720RS1227Z EP type number : 0 413 406 215 Governor Governor design. : RQV325...1300MW126 : 0 420 083 279 Governer no. Cust. part no. : 1249952 Customer-spec. information Customer : DAF Engine : NS133L 1st version kW : 133.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Openina pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 3.00...3.10 Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1000Rack travel in mm : 11.7...11.8 Del.quantity cm3/: 9.25...9.45 100 s: (9.15...9.65) Spread cm3 : 0.3100 s: (0.6) rpm : 325.02nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 0.7...1.1 100 s: (0.45...1.35) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 travel mm : 8.4...8.8 2nd speed : 875 rpm travel mm : 4.9...5.1 3rd speed : 500 rpm travel mm : 2.7...3.3 4th speed 325 rpm : 1.5...1.9 travel mm GUIDE SLEEVE POSITION rpm : 1350Speed Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1000 : 92.5...94.5 Del.quantity 1000 : (91.5...96.5) Spread cm3 : 3.50 1000 : (6.00)

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

RATED SPEED 1st version Control Lever position degrees: 118...126 Testing: 1st rack travel in: 10.75 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 Speed rpm : 0.0...1.0 LOW IDLE 1 Control lever position degrees: 78,..86 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.5 Testing: Speed rpm : 225 Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.7...11.8 2nd speed rpm : 1300 Rack travel in m: 11.65...11.85 3rd speed rpm : 600 Rack travel in m: 9.8...10.0 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 1000 Rack travel mm : 11.7...11.8 Measurement $1/\min : 600$ Speed 1st pressure hPa : 290 Rack travel in m: 11.2...11.3 2nd pressure hPa : 160 Rack travel in m: 10.3...10.5 3rd pressure hPa : -Rack travel in m: 9.8...10.0 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1000 rpm : 1300 Speed Del.quantity cm3/: 89.5...92.5 1000 s: (87.0...95.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 62.0...64.0 1000 s: (60.0...66.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.75 rpm : 1324...1340 Speed LOW IDLE Speed rpm : 325 Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

K01

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 31.05.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 310

Injection pump Pump designation PES6MW100/720RS1227Z

EP type number : 0 413 406 217

Governor

Governor design. : RQV325...1300MW126

: 0 420 083 279 Governer no.

Cust. part no. : 1249952/3

Customer-spec. information Customer : DAF

Engine : NS133L

1st version kW : 133.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in mm : 13.5

Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.7...11.8

Del.quantity cm3/: 9.25...9.45

100 s: (9.15...9.65)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.45...1.35)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.42...1.92 travel mm

2nd speed : 363 rpm travel mm : 1.8...2.3

3rd speed : 490 rpm

travel mm 2.68...3.18 4th speed : 872 rpm

: 4.72...5.22 travel mm

5th speed rpm : 1334

: 8.23...8.73 travel mm

GUIDE SLEEVE POSITION

rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 92.3....96.5)

Spread cm3: 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 10.75 Speed rpm : 1324...1340 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 Speed rpm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 4.5 Testing: Speed : 225 rpm Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.7...11.8 2nd speed rpm : 1300 Rack travel in m: 11.65...11.85 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom Pressure hPa : 1000 Rack travel mm : 11.7...11.8 Measurement Speed $1/\min : 600$ 1st pressure hPa : 290 Rack travel in m: 11.2...11.3 2nd pressure hPa : 160 Rack travel in m: 10.3...10.5 3rd pressure hPa : -Rack travel in m: 9.8...10.0 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 1300 Del.quantity cm3/: 89.5...92.5 1000 s: (87.0...95.0) cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 62.0...64.0 1000 s: (60.0...66.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.75 Speed rpm : 1324...1340 LOW IDLE Speed : 325 rpm Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: DAF

Edition

: 28.04.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 314

Injection pump

Pump designation : PES6MW100/720RS1227

EP type number

: 0 413 406 215

Governor

Governor design. : RQ325/1300MW129

: 0 420 082 070 Governer no.

Cust. part no.

: 1249932

Customer-spec. information

Customer

: DAF

Engine

: NS156L

1st version kW

: 156.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Openina

pressure, bar

: 207...210

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.00...3.10

Rack travel in mm: 13.5

Firing order : 1-5-3-6-2-

Phasina

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

2nd speed

rpm : 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 325.0

Rack travel in mm: 4.4...4.6

Del. quantity cm3/: 0.7...1.1

100 s: (0.45...1.35) cm3 : 0.3Spread

100 s: (0.5)

(3) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1360

: 6.3...6.7 travel mm

rpm : 13002nd speed

travel mm : 5.9...6.1

3rd speed : 450 rpm

3.5...4.1 travel mm

325 4th speed rpm

travel mn

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 800

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000

Aneroid pressure h: 1000

cm3

Del.quantity : 110.0....114.0)

Spread

: 3.50

1000 : (6.00)

K04

RATED SPEED 1st version Control lever position degrees: 90...98 Setting point: Speed **PD**m Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.05 Speed rpm : 1334...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 Speed rpm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 74...78 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 4.5 Testing: Speed : 225 TION: Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING rpm : 475 Speed Rack travel in mm: 2.0 TORQUE CONTROL Torque control curve - 1st version rpm : 1900 1st speed Rack travel in m: 13.0...13.1 rpm : 1300 2nd speed Rack travel in m: 12.95...13.15 3rd speed d speed rpm : 600 Rack travel in m: 10.0...10.2 rpm : 1000 4th speed Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure Rack travel mm

: 13.0...13.1

1/min : 600

1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS 1st version Ameroid pressure h: 1000 rpm : 1300 Speed Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 600 Speed Del.quantity cm3/: 63.0...65.0 1000 s: (61.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.05 rpm : 1334...1350 Speed LOW IDLE Speed rpm : 325 Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

Measurement Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : DAF Edition : 31.05.94 Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 314

Injection pump

Pump designation : PES6MW100/720RS1227

EP type number : 0 413 406 215

Governor

Governor design. : RQ325/1300MW129 Governer no. : 0 420 082 070

Cust. part no. : 1249932/5

Customer-spec. information Customer : DAF

Engine : NS156L

1st version kW : 156.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening |

pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 13.0...13.1

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0 Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.45...1.35) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325 travel mm : 1.76...1.96

2nd speed

rpm : 424 : 3.25...3.45 travel mm

3rd speed rpm : 600

5.9...6.1 travel mm 1300

4th speed rpm

5.9...6.1 travel mm

5th speed : 1357 rpm

travel mm : 6.26...6.46

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

Speed rpm : 800

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 110.0...114.0)

Spread cm3 : 3.50 Speed $1/\min : 600$ 1000 : (6.00) 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 RATED SPEED 1st version Control Lever 3rd pressure hPa : position degrees: 90...98 Rack travel in m: 10.0...10.2 Setting point: FUEL DELIVERY CHARACTERISTICS Speed mon Rack travel in mn: 20.0 1st version Testina: Aneroid pressure h: 1000 1st rack travel in: 12.05 Speed rom : 1300 Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0) Spread cm3: 5.00 rpm : 1334...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 1000 s: (7.0) Speed rpm : 0.0...1.0Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 63.0...65.0 LOW IDLE 1 Control lever 1000 s: (61.0...67.0) position degrees: 74...78 Setting point w/out bumper spring rpm : 325 **BREAKAWAY** Rack travel in mm: 4.5 1st version Testing: 1mm rack travel less than rpm : 225 Speed Minimum rack trave: 6.0 full load rack tr: 12.05 rpm : 325 Speed rpm : 1334...1350 Rack travel in mm: 4.4...4.6 LOW IDLE SET IDLE AUXILIARY SPRING Speed rpm : 325 Rack travel in mm : 4.4...4.6 Speed rpm: 475 Rack travel in mm: 2.0 Del.quantity cm3/ : 7.0...11.0 TORQUE CONTROL 1000 s: (4.5...13.5) Torque control curve - 1st version Spread cm3 : 3.501st speed rpm : 1000 1000 s: (5.00) Rack travel in m: 13.0...13.1 rpm : 1300 2nd speed Remarks: Rack travel in m: 12.95...13.15 : 3rd speed rpm : 600 Rack travel in m: 10.0...10.2 4th speed rpm : 1000 Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 1000 Rack travel mm : 13.0...13.1 Measurement

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.2...4.3 Rack travel in mm : 11.5...14.5 : 1-5- 3- 6- 2-Note remarks Firing order Test sheet : RVI Edition : 22.05.94 Replaces Test oil : ISO-4113 Phasina 0-60-120-180-240-300 Combination no. : 0 403 446 316 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump Pump designation BASIC SETTING PES6MW100/320RS1216-1st speed rpm: 1175 : 0 413 406 223 EP type number Governor Rack travel in mm: 13.8...14.0 Governor design. RQV350...1175MW113-2 Del.quantity cm3/: 12.2...12.4 Governer no. : 0 420 083 248 100 s: (12.0...12.6) Customer—spec. information Customer Spread cm3 : 0.3: MIDR 060226 X Engine 100 s: (0.6) 1st version kW : 166.0 rpm : 275 2nd speed Rack travel in mm : 5.95...6.35 Del.quantity cm3/ : 2.8...3.2 : 2350 Rated speed TEST BENCH REQUIREMENTS 100 s: (2.55...3.45) Spread cm3 : 0.3 Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 2 417 413 033 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 1st speed rpm : 350 : 0.61...1.11 travel mm Test nozzle holder 2nd speed : 468 rpm assembly : 1 688 901 101 : 2.21...2.71 travel mm 3rd speed : 620 rpm Opening : 3.38...3.88 travel mm pressure, bar : 207...210 4th speed : 929 rpm : 5.13...5.63 travel mm 5th speed : 1266 rpm Test lines : 1 680 750 008 : 6.86...7.36 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position : 6.00x2.00x600 x Length mm Dearee: -1 rpm : 1460 (A) Injection pump setting values Rack travel in mm : 15.2...17.8 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values 1st version BEGINNING OF DELIVERY Speed rpm : 1175 Test pressure, bar: 30...32 Aneroid pressure h: 1000

: 122.0...124.0 Del.quantity 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 301...309 Testing: 1st rack travel in: 12.95 Speed rpm : 1230...1240 2nd rack travel in: 4.00 Speed rpm : 1440...1480 4th rack travel in: 1600 Speed rpm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 244...252 Setting point w/out bumper spring : 275 rpm Rack travel in mm: 6.15 Testing: Speed : 200 rpm Minimum rack trave: 6.95 Speed rpm : 275
Rack travel in mm : 5.95...6.35 TURGUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 13.9...14.0 rpm : 700 2nd speed Rack travel in m: 13.9...14.0 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 1000 Pressure Rack travel mm : 13.9...14.0 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.05...10.65 2nd pressure hPa : 520 Rack travel in m: 13.15...11.25 3rd pressure hPa : 350 Rack travel in m: 10.95...11.25 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 700 Speed Del.quantity cm3/: 129.5...133.5 1000 s: (126.5...136.5) cm3 Spread : 6.00 1000 s: (9.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 67.0...69.0 1000 s: (65.0...71.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.95 Speed rpm : 1230...1240 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 95.0...115.0 1000 s: (92.0...118.0) LOW IDLE Speed : 275 rpm Rack travel in mm : 5.95...6.35 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI Edition : 20.05.94 Replaces Test oil : ISO-4113 : 0 403 446 317 Combination no. Injection pump Pump designation PES6MW100/320RS1214-EP type number : 0 413 406 224 Covernor Governor design. RQV275...1250MW115-K Governer no. : 0 420 083 994 Customer-spec. information Customer Engine : MIDR 060226 W 1st version kW : 151.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly **Opening** pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

: 4.2...4.3 Prestroke mm Rack travel in mm : 16.5...19.5 : 1-5- 3- 6- 2-Firing order Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 14.1...14.2 Del.quantity cm3/: 11.8...12.0 100 s: (11.6...12.2) Spread cm3 : 0.3100 s: (0.6) rpm : 275 2nd speed Rack travel in mm : 5.95...6.35 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 275 1st speed : 0751...1.25 travel mm 2nd speed rpm : 390 travel mm : 2.14...2.64 3rd speed : 550 rpm travel mm 3.67...4.17 4th speed : 924 rpm : 6.52...7.02 travel mm : 1344 5th speed rpm : 9.74...10.24 travel mm GUIDE SLEEVE POSITION Control-Lever position Degree: -1 rpm : 1350 Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 1000

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Del.quantity : 118.0...120.0 1000 : (116.0...122.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: 298...306 Testina: 1st rack travel in: 13.15 Speed rpm : 1305...1315 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1600 rpm : 0.0...1.0 Speed LOW IDLE 1 Control lever position degrees: 240...248 Setting point w/out bumper spring rpm : 275 Speed Rack travel in mm: 6.05 Testina: Speed rpm : 200 Minimum rack trave: 6.65 Speed rpm : 275 Rack travel in mm : 5.95...6.15 Aneroid/Altitude Compensator Test 1st version Settina rpm : 1250 Speed hPa : 1000 Pressure Rack travel mm : 14.1...14.2 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.95...11.35 2nd pressure hPa : 300 Rack travel in m: 12.35...12.45 3rd pressure hPa : 200 Rack travel in m: 11.65...11.95 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700
Del.quantity cm3/: 115.5...118.5
1000 s: (113.0...121.0)

Spread cm3:5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm:500
Del.quantity cm3/:79.0...81.0
1000 s: (77.0...33.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.15 Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 95.0...115.0 1000 s: (92.0...118.0)

LOW IDLE

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI Edition : 20.05.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 318 Injection pump Pump designation PES6MW100/320RS1214-EP type number : 0 413 406 224 Governor Governor design. : RQV275...1250MW115-1 Governer no. : 0 420 083 992 Customer-spec, information Customer : RVI Engine : MIDR 060226 V 1st version kW : 129.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly **Opening** pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Prestroke mm : 4.2...4.3 Rack travel in mm : 16.5...19.5 Firing order : 1-5- 3- 6- 2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rom: 1250 Rack travel in mm : 13.1...13.2 Del.quantity cm3/: 11.2...11.4 100 s: (11.0...!1.6) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 275 Rack travel in mm : 5.45...5.85 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed travel mm : 0.76...1.26 2nd speed rpm : 389 travel mm 2.14...2.64 3rd speed rpm 560 3.77...4.27 travel mm 4th speed : 924 rpm : 6.53...7.03 travel mm : 1344 5th speed rpm travel mm : 9.75...10.25 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm: 1350 Rack travel in mm: 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 1000

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Del.quantity : 112.0...114.0 1000 : (110.0...116.0) Spread cm3: 3.50 1000 : (6.00)RATED SPEED 1st version Control Lever position degrees: 296...304 Testina: 1st rack travel in: 12.15 rpm : 1295...1315 Speed 2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1600 rpm : 0.0...1.0Speed LOW IDLE 1 Control Lever position degrees: 238...246 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm: 5.65 Testing: Speed : 200 rpm Minimum rack trave: 6.25 Speed rpm : 275 Rack travel in mm : 5.45...5.85 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.1...13.2 : 700 2nd speed rpm Rack travel in m: 12.2...12.3 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1250 hPa : 1000 Pressure Rack travel mm : 13.1...13.2 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 11.05...11.45 2nd pressure hPa : 240 Rack travel in m: 12.6...12.7 3rd pressure hPa : 120 Rack travel in m: 11.6...11.9

1st version Aneroid pressure h: 1000 Speed rpm : 700 Del quantity cm3/ : 108.5...111.5 1000 s: (106.0...114.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 89.0...91.0 1000 s: (87.0...93.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.15 Speed rpm : 1300...1310 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 95.0...115.0 1000 s: (92.0...118.0) LOW IDLE Speed rpm : 275 Rack travel in mm : 5.45...5.85 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI : 20.05.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 319 Injection pump Pump designation PES6MW100/320RS1216-EP type number : 0 413 406 223 Governor Governor design. : RQV275...1250MW124K : 0 420 083 989 Governer no. Customer-spec. information Customer : RVI Engine : MIDR 060226 U : 110.0 1st version kW Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Opening . pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 11.5...14.5 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 13.2...13.3 Del.quantity cm3/: 10.6...10.8 100 s: (10.4...11.0) Spread cm3 : 0.3100 s: (0.6) rpm : 275 2nd speed Rack travel in mm : 5.85...6.25 Del.quantity cm3/ : 2.0...2.4 100 s: (1.75...2.65) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 275 : 0.75...1.25 travel mm 2nd speed rpm : 390 : 2.14...2.64 travel mm 3rd speed : 550 rpm : 3.77...4.27 travel mm rpm : 924 4th speed : 6.53...7.03 travel mm 5th speed : 1344 rpm : 9.75...10.25 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Speed Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 : 106.0...108.0 Del.quantity 1000 : (104.0...110.0)

per values ____

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 4.2...4.3

Spread

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 296...304

Testing:

1st rack travel in: 12.25

rpm : 1305...1315 Speed

2nd rack travel in: 4.00

rpm : 1450...1480 Speed

4th rack travel in: 1600

Speed rpm : 0.0...1.0

LOW IDLE 1

Control Lever

position degrees: 241...249 Setting point w/out bumper spring

Speed npm : 275

Rack travel in mm: 6.05

Testing:

Speed rpm : 200

Minimum rack trave: 6.65

rpm : 275

Rack travel in mm : 5.85...6.25

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 13.2...13.3 2nd speed rpm : 700

Rack travel in m: 11.85...11.95

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 93.0...96.0 1000 s: (90.5...98.5)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.25

rpm : 1305...1315 Speed

STARTING FUEL DELIVERY

Speed

rpm

: 100

K15

Del.quantity cm3/: 95.0...115.0

1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.85...6.25
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

Edition : 31.05.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 474 020

Injection pump

Pump designation : PES4MW100/720RS1212

EP type number : 0 413 404 114

Governor

Covernor design. : RSV350...1200Mw0A346

Governer no. : 0 420 085 180

Cust. part no. : 0180747202

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM364LA

1st version kW : 99.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.7...3.8 : (3.65...3.85)

Rack travel in mm: 9.0...12.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.5...13.6

Del.quantity cm3/ : 9.3...9.5

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.0...6.8 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 eed rpm : 800

Rack travel in mm: 0.3...1.0

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1200

Aneroid pressure h: 700

Del.quantity : 96.0...98.0

1000 : (94.0...10.0) cm3 : 3.50

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm: 800

Rack travel in mm: 0.65 Testing: 1st rack travel in: 12.55 rpm : 1240...1245 2nd rack travel in: 4.00 rpm : 1289...1294 Speed 4th rack travel in: 1450 Speed ricm : 0.3...1.7LOW IDLE 1 Rack travel in mm: 6.4 Testina: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 350 Rack travel in mm: 6.0...6.8 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 13.5...13.6 2nd speed rpm : 600 Rack travel in m: 13.45...13.65 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed man Pressure Rack travel mm : 13.5...13.6 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.65...10.85 2nd pressure hPa : 200 Rack travel in m: 11.9...12.0 3rd pressure hPa : 375 Rack travel in m: 12.9...13.2 FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 84.5...87.5 1000 s: (82.0...90.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.55 Speed rpm : 1240...1245 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 85.0...95.0 1000 s: (83.0...98.0) LOW IDLE rpm : 350 Speed Rack travel in mm: 6.0...6.8 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Test hydr. locking device for starting with 800...1200 hPa air pressure. Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Spread

Speed

Aneroid pressure h: 700

Aneroid pressure h: -

rpm : 600

cm3 : 5.00

1000 s: (7.00)

1000 s: (37.0...43.0)

rpm_ : 500

Del.quantity cm3/: 39.0...41.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN

Edition : 06.06.94

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 099A

Injection pump

Pump designation : PES6MW100/320RS1209

EP type number : 0 413 406 200

Governor

Governor design. : RSV300...900MW1A802

: 0 420 085 113 Governer no.

Cust. part no. : 3-7112

Customer-spec. information

Customer : MAN

Engine : D0826LE20

1st version kW : 141.0

Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 3.20...3.30

Test pressure, bar: 30...32

: (3.15...3.35)

Rack travel in mm : 14.0...16.0 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 14.8...15.0

100 s: (14.5...15.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 6.6...7.4 Del.quantity cm3/: 3.4...3.8

100 s: (3.15...4.05)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

: 148.0...150.0 Del.quantity

1000 : (145.0...153.0)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Setting point:

: 800 Speed rpm Rack travel in mm: 0.65

Testing:

1st rack travel in: 13.80 rpm : 900...905 2nd rack travel in: 4.00 rpm : 936...941 Speed 4th rack travel in: 1050

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 64...72 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.0 Speed : 300 rpm Rack travel in mm: 6.6...7.4

SET IDLE AUXILIARY SPRING Speed rpm : 340 Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 rpm : 900...905 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (127.0...153.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.60...7.40 Del.quantity cm3/: 34.0...38.0 1000 s: (31.5...40.5)

cm3 : 6.00Spread

1000 s: (9.00)

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: VME : 30.05.94 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 136

Injection pump

Pump designation : PES6MW100/320RS1237

EP type number : 0 413 406 233

Governor

Governor design. RSV300...1100MW1A353

: 0 420 085 223 Governer no.

Customer-spec. information Customer : VME

: TD61GD Engine

: 92.0 1st version kW Rated speed : 2200

TEST RENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.0...13.0

Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.15...13.25

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 315.0 2nd speed Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.4...0.8

100 s: (0.15...1.05) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 105.0...107.0

1000 : (102.0...109.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

rpm

Rack travel in mm: 0.65

Testina: 1st rack travel in: 12.20 rpm : 1135...1145 Speed 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1250 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 71...79 Setting point w/out bumper spring Speed rpm : 315 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 315 Rack travel in mm: 6.4...6.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.15...13.25 2nd speed rpm : 500 Rack travel in m: 13.8...14.0 3rd speed rpm : 660 Rack travel in m: 13.4...13.6 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 Speed rpm : 1135...1145 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 83.0...97.0 1000 s: (100.0...80.0) Rack travel in mm : 20.0...21.0 LOW IDLE Speed rpm : 315 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 4.0...8.0 1000 s: (1.5...10.5) Spread cm3: 3.50 1000 s: (5.50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN

Edition : 31.05.94

Fleplaces

Test oil : ISO-4113

Combination no. : 0 403 486 105

Injection pump

Pump designation : PES6MW100/321RS1231

EP type number : 0 413 406 225

Governor

Governor design. RSV300...1100MW0A343

Governer no. : 0 420 085 209

: 3-7263 Cust. part no.

Customer-spec. information : MAN

Customer

Engine

: D0826LE522

: 154.0 1st version kW

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2,00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.5...3.6

: (3.45...3.65) Rack travel in mm : 9.0...13.0

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.05...12.15

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300 2nd speed

Rack travel in mm: 4.9...5.1 Del.quantity cm3/ : 0.9...1.3

100 s: (0.65...1.55)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1000

: 143.0...145.0 Del.quantity

1000 : (140.0...148.0)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point: rpm : 800 Speed Rack travel in mm: 0.65 Testing: 1st rack travel in: 11.00 rpm : 1150...1160 Speed 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1350 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.0 Testing: : 100 Speed rpm Minimum rack trave: 19.0 : 300 rpm Rack travel in mm: 4.9...5.1 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.0 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.05...12.15 2nd speed rpm : 900 Rack travel in m: 12.3...12.4 3rd speed rpm : 600 Rack travel in m: 12.3...12.5 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 L/CW hPa : 1000 Pressure Rack travel mm : 12.3...12.5 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.4...9.5

Speed 1/min: 500

1st pressure hPa: Rack travel in m: 9.4...9.5
2nd pressure hPa: 150
Rack travel in m: 9.7...9.8
3rd pressure hPa: 600
Rack travel in m: 11.6...11.9

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 05.06.94 Replaces : ISO-4113 Test oil Combination no. : 0 403 486 108 Injection pump Pump designation : PES6MW100/321RS1208 EP type number : 0 413 406 199 Governor Governor design. RSV350...900Mi/1A360-: 0 420 085 239 Governer no. : 3-7311 Cust. part no. Customer-spec. information Customer : MAN Engine : D0826LE102 : 154.0 1st version kW : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 681 343 009 **Opening** pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 K24

Prestroke mm : 3.5...3.6 : (3.45...3.65) Rack travel in mm : 9.0...13.0 Firing order : 1-5-3-6-2-Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 870 Rack travel in mm : 14.85...14.95 Del.quantity cm3/: 15.8...16.0 100 s: (15.5...16.3) cm3 : 0.4Spread 100 s: (0.7) rpm : 350 2nd speed Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 1.1...1.5 100 s: (0.85...1.75) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1100 Del.quantity : 158.0...160.0 1000 : (155.0...163.0) cm3 : 4.00Spread 1000 : (7.50)

RATED SPEED

1st version Control lever position degrees: 87...95 Setting point:

rom : 800 Speed Rack travel in mm: 0.65 Testing: 1st rack travel in: 13.80 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm : 965...975 4th rack travel in: 1050 rpm : 0.30...1.70 Speed 5th rack travel in: 965...995 Speed rpm : 4.00 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.5 Testina: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 350 Speed Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING Speed rpm : 350 Rack travel in mm: 4.9...5.1 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 870 Rack travel in m: 14.85...14.95 2nd speed rpm : 500 Rack travel in m: 14.8...15.0 rpm : 700 3rd speed Rack travel in m: 14.8...15.0 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.80 Speed rpm : 915...925 STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (137.0...163.0)

rpm : 350

Rack travel in mm: 4.4...4.6

Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

K25

Speed

LOW IDLE

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM Edition : 07.06.94 Replaces : 16.07.93 Test oil : ISO-4113

Combination no. : 9 400 085 243

Injection pump

Pump designation : PES4A80D320RS1282-1

EP type number : 9 400 083 097

Governor

Governor design. R\$350/1500A2C2073-2R

: 9 420 083 269 Governer no.

Customer-spec, information Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75

: (2.60...2.80) Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rom: 1500

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 5.8...5.9

100 s: (5.6...6.0)

Spread cm3 : 0.2

100 s: (0.4)

rpm : 350.02nd speed Rack travel in mm : 6.0...6.2

Del.quantity cm3/: 0.7...1.0

100 s: (0.5...1.2)

Spread cm3 : 0.4100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 58.0...59.0

: (56.5...60.5) : 2.50 1000

Spread cm3 1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Testing:

1st rack travel in: 8.20 rpm : 1580...1590 Speed 2nd rack travel in: 4.00 Speed rpm : 1625...1655 4th rack travel in: 1800 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.1 Testing: rpm : 250 Speed Minimum rack trave: 6.80 Speed rpm : 350 Rack travel in mm : 6.00...6.20 Rack travel in mm: 4.00 rpm : 430...490 Speed rpm : 550 Speed Maximum rack trave: 3.20 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1500 Rack travel in m: 9.20...9.30 2nd speed rpm : 500 Rack travel in m: 10.60...10.70 3rd speed rpm : 900 Rack travel in m: 10.20...10.40 4th speed rpm : 1200 Rack travel in m: 9.50...9.80 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 58.0...61.0 1000 s: (56.5...62.5) rpm : 900 Speed Del.quaritity cm3/: 62.5...65.5 1000 s: (61.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.20 rpm : 1540...1550 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.00...21.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.60...4.70 (4.55...4.75)Note remarks Rack travel in mm: 21.00 : 1-3-5-4-2 Firing order Test sheet Edition : 7.6.94 Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 9 400 087 484 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PES5P120A720LS7280 EP type number : 9 400 087 087 BASIC SETTING Governor Governor design. : RQV300...1050PA1114 1st speed rpm: 600 : 9 420 080 361 Governer no. Rack travel in mm: 12.20...12.30 Customer-spec. information Customer : MRECEDES-BENZ Del.quantity cm3/: 19.3...19.5 Engine : OM 449 LA 100 s: (19.0...19.8) 1st version kW : 184.0 Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Rack travel in mm: 5.2...5.4 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.3) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 105 assembly GUIDE SLEEVE TRAVEL. rpm : 1050 1st speed Opening travel mm : 7.70...7.90 : 207...210 pressure, bar 2nd speed rpm : 300travel mm : 0.50...1.00 Orifice plate 3rd speed : 500 rpm diameter mm : 3.00...3.50 : 0,8 travel mm : 700 4th speed rpm travel mm 5.20...5.70 Test lines : 1 680 750 075 : 1165 5th speed rpm : 9.20...9.70 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 8.00x2.50x1000 Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1115 Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 193.0...195.0 Rack travel in m: 11.60...11.80 1000 : (190.0...198.0) 3rd pressure hPa : 1080 cm3 : 5.00 Spread Rack travel in m: 12.40...12.50 1000 : (9.00) 4th pressure hPa : 1200 Rack travel in m: 12.70...12.90 RATED SPEED 5th pressure hPa : -Rack travel in m: 10.10...10.40 1st version Control lever START CUT-OUT position degrees: 117...125 1/min: 250 (260) Speed Testing: 1st rack travel in: 11.10 FUEL DELIVERY CHARACTERISTICS rpm : 1105...1115 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 1st version 4th rack trayel in: 1300 Aneroid pressure h: 1500 Speed rpm : 0.00...1.00rpm : 1050 Speed Del.quantity cm3/: 194.0...198.0 1000 s: (191.0...201.0) LOW IDLE 1 Control Lever Spread cm3 : 8.00 position degrees: 79...87 1000 s: (12.) Aneroid pressure h: 1500 Testing: Speed rpm : 800 Speed Del.quantity cm3/: 218.5...222.5 : 100 rpm Minimum rack trave: 8.00 1000 s: (215.5...225.5) : 300 rpm Spread cm3 : 8.00Rack travel in mm : 5.20...5.40 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 120.0...122.0 1000 s: (117.0...125.0) CONSTANT REGULATION Speed rpm : 250...400 TORQUE CONTROL Spread cm3 : 5.00Dimension a mm : 1.00 1000 s: (9.00) Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.0...12.2 **BREAKAWAY** 2nd speed rpm : 800 Rack travel in m: 13.0...13.2 1st version 3rd speed rpm : 900 1mm rack travel less than Rack travel in m: 12.7...12.9 4th speed rpm : 950 full load rack tr: 11.10 Rack travel in m: 12.4...12.6 rpm : 1105...1115 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test Speed : 100 rpm 1st version Del.quantity cm3/: 240.0...260.0 Setting 1000 s: (236.0...264.0) Speed : 600 rom hPa : 800 Pressure Remarks: : 12.20...12.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 360 Rack travel in m: 10.60...10.80 2nd pressure hPa : 500

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet Edition

: MAN : 26.05.94

replaces Calibrating oil : ISO-4113

: 12.93

Injection pump

: VE4/10F1350R418-2

Type number

: 0 460 404 076

Customer Part-No. :

Customer-specific information

Customer

: MAN

Engine

: D 0824 GF 03

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

Pressure

bar: 207.00...210.00

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Lenath

mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1000

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000

Setting value bar: 6.40...7.00

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

1/min: 1420 Speed

Del. quantity cm3/ 1000s.: 58.00...62.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 64.00...66.00 mind 1000s.: 65.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1350 1st speed

mm: 6.00...6.80 TD travel

mm:

electromagnet Volt: 24

2nd speed 1/min: 1200

mm: 4.30...5.10 TD travel

mm: (4.00...5.40)

Shutoff

electromagnet Volt: 24

3rd speed 1/min: 1000

mm: 2.20...2.60 TD travel

mm: (1.70...3.10)

Shutoff		† Del. quantity cm3/: 58.0062.00
electromagnet Volt:		10008.: (53.5066.50)
4th speed 1/min:		+ 5th speed 1/min: 1350
	1.001.80	+ Shutoff
	(0.702.10)	+ electromagnet Volt: 24
Shutoff	04	+ Del. quantity cm3/: 75.7078.70
electromagnet Volt:	24	10005.: (74.2080.20)
C		+ 6th speed 1/min: 1000
Supply-pump pressure	e characteristic:	+ Shutoff
1st speed 1/min:	400	electromagnet Volt: 24
	000	bel. quantity cm3/: 76.0077.00
Supply-pump pressure bar:	4.305.00	1000s.: (74.0079.00)
Shutoff	4.303.00	+ 7th speed 1/min: 800 + Shutoff
electromagnet Volt:	24	electromagnet Volt: 24
2nd speed 1/min:		Del. quantity cm3/: 77.0081.00
Supply-pump	1000	1000s.: (75.5082.50)
	6.407.00	+ 8th speed 1/min: 600
Shutoff		+ Shutoff
electromagnet Volt:	24	+ electromagnet Volt: 24
3rd speed 1/min:		Del. quantity cm3/: 63.0069.00
Supply-pump		+ 1000s.: (62.0070.00)
pressure bar:	7.408.00	+
Shutoff		+ Mech. shutoff:
electromagnet Volt:	24	+ Mech. Abstellung:
		Ť
Overlow quantity at	overflow valve:	1st speed 1/min: 1350
	100	+ Del. quantity cm3/: 0.003.00
1st speed 1/min:	600	† 1000s.: -
Shutoff	04	+ Shutoff
electromagnet Volt:	24	+ electromagnet volt: 24
	41.7086.40	† -, , , , , , , , , , , , , , , , , , ,
quantity cm3/10s: 2nd speed 1/min:		+ Electr. shutoff:
Shutoff	1330	1 10t speed 1/min. 700
electromagnet Volt:	2/,	+ 1st speed 1/min: 300
	55.60139.00	+ Del. quantity cm3/: 0.003.00 + 1900s.: (0.003.00)
quantity cm3/10s:		- Shutoff
quare (e) = 0.007 (00).	(40.00:::154.00)	electromagnet volt: -
Delivery-quant. and	breakaway char.:	- ceceti dinagnee vote.
	,	Idle delivery:
1nd speed 1/min:	1550	+ 1st speed 1/min: 300
Shutoff		+ Shutoff
electromagnet Volt:		+ electromagnet Volt; 24
Del. quantity cm3/:		+ Del. quantity cm3/: 7.0013.00
10005.:		† 1000s.: (4.5015.50)
2nd speed 1/min:	1510	+ Dispersion cm3/: 3.5
Shutoff electromagnet Volt:	24	10008.: (3.5)
Del. quantity cm3/:		+ 2nd speed 1/min: 450
1000S.:		Shutoff
3rd speed 1/min:		electromagnet Volt: 24
Shutoff	1700	+ Del. quantity cm3/: 0.003.00 + 1000s.: (0.003.00)
electromagnet Volt:	24	10003 (0.00)3.00)
Del. quantity cm3/:		Automatic starting fuel delivery:
1000s.:		Adequate starting fact detivery.
4th speed 1/min:		1st speed 1/min: 350
Shutoff		+ Shutoff
electromagnet Volt:	24	+ electromagnet Volt: 24

Del. quantity cm3/: 65.00...105.00

1000s.: (65.00...105.00)

2nd speed 1/min: 450 Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 64.00...66.00 1000s.: (64.00...66.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -KF mm: 5.0...5.4 MS mm: 1.0...1.2 Ya mm: 37.4...41.4 Yb mm: 39.4...44.6

Remarks:

: MAN 51.11103-721

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on trive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = \max . 5.0 ccm/1000 S.

BOSCH-INJ. - PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : PER

Edition : 09.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R529 Type number : 0 460 424 097

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : T4.40 110TI "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina |

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 850 Charge press. hPa: 1200 Setting value mm: 1.50...1.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 850 Charge press hPa: 1200

Setting value bar: 6.00...6.60

Shutoff

electromagnet Volt: 24

full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 57.50...58.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300 Speed Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1440 Speed Charge press hPa: 1200 Del. quantity cm3/

1000s.: 48.00...52.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...140.00 mind 1000s.: 80.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

TD travel mm:	1200 2.403.00	‡	Delivery-quant. and	breakaway char.:
	(2.003.40)	†		
Shutoff		+	1nd speed 1/min:	
electromagnet Volt:		+	Charge-air pressure	-setting
3rd speed 1/min:	850	+	point hPa:	
Charge press hPa:	1200	+		5.6
TD travel mm:		1	Shutoff	
	(0.902.30)	1	electromagnet Volt:	24
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	24	1	10009	(66.0072.00)
4th speed 1/min:		1	2nd speed 1/min:	
	1200	\mathbf{I}		
	0.309.90	T	Charge press. hPa: Shutoff	1200
	(0.001.20)	1		24
	(0.001.20)	T	electromagnet Volt:	24
Shutoff	2/	+	Del. quantity cm3/:	
electromagnet Volt:		+		(0.003.00)
5th speed 1/min:		+	3rd speed 1/min:	
	1200	+	Charge press. hPa:	1200
	3.003.60	+	Shutoff	
mm:	(2.604.00)	+	electromagnet Volt:	24
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	24	1		(20.0040.00)
		1	5th speed 1/min:	
Supply-pump pressur	e characteristic:	1.	Charge press. hPa:	
a minter of the contract		Ţ	Shutoff	1200
1st speed 1/min:	1300	I	electromagnet Volt:	2/.
Charge press. hPa:		T		
Supply-pump	1200	T	Del. quantity cm3/:	(44.0056.00)
	7.908.50	T		
	7.900.30	T	9th speed 1/min:	
Shutoff	2/	+	Charge press. hPa:	1200
electromagnet Volt:		+	Shutoff	•
2nd speed 1/min:		+	electromagnet Volt:	
	1200	+	Del. quantity cm3/:	
Supply-pump		+	1000s.:	(74.0081.00)
•	6.006.60	+	12th speed 1/min:	1000
Shutoff		+	Charge press. hPa:	1200
electromagnet Volt:	24	+	Shutoff	
3rd speed 1/min:	500	+	electromagnet Volt:	24
	1200	1	Del. quyntity cm3/:	
Supply-pump		1		(71.0077.00)
	4.505.10	1	16th speed 1/min:	
Shutoff	1.303.10	L	Charge press. hPa:	
electromagnet Volt:	24	I	Shutoff	
eccerollagilet voct.	C 4	T		2/.
Overlow quantity at	overflow velves	T	electromagnet volt:	
over tow qualitatly at	over tow valve.	T	Del. quantity cm3/:	
1st speed 1/min.	700	T	1000/1.	(52.5059.50)
1st speed 1/min:		†	18th speed 1/min:	
Charge press. hPa:	1200	+	Charge press. hPa:	-
Shutoff	21	+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	
	41.7083.40	+	Del. quantity cm3/:	
quantity cm3/10s:		+		(55.0061.00)
2nd speed 1/min:		+	20th speed 1/min:	700
Charge press. hPa:	1200	+	Charge press. hPa:	
Shutoff		+	Shutoff	
electromagnet Volt:	24	+	electromagnet Volt:	24
	55.60139.00	+	Del. quantity cm3/:	
quantity cm3/10s:		1		(70.0077.00)
,, -, -, -, -, -, -, -, -, -, -, -, -,		ı	10005	

Mech. shutoff: Mech. Abstellung:

1/min: 1300 1st speed

Charge press. hPa: 1200 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 8.00...12.00 1000s.: (5.00...15.00) Dispersion cm3/: 5.0

1000s.: (5.0)

1/min: 400 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1/min: 150 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 35.00...75.00

1000s.: (35.00...75.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 80.00...140.00 1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

: 20.0 min voltage : 24.0 Rated voltage

L07

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 KF mm: KOT MS1 mm: 1.0...1.3

SVS max. mm: -LDA stroke mm: 5.6

mm: 31.5...33.5 Ya Yb mm: 47.7...56.3

Remarks:

Ya = Distance between VE flange and

speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : MAN

Edition : 09.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1200R568 Type number : 0 460 424 101

Customer Part-No. :

Customer-specific information

Customen : MAN

Engine : D 0824 LFL 01

"DĬ"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Openina

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 850 Charge press. hPa: 1500

Setting value mm: 2.00...2.40

AFB/AFB

valve Volt: 12

Supply-pump pressure

1/min: 850

Charge press hPa: 1500

Setting value bar: 6.40...7.00

KSB/AFB

valve Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1500
Del. quantity cm3/
1000S.: 107.50...108.50

KSB/AFB

valve Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550

Del. quantity cm3/

1000s.: 60.50...61.50

11

KSB/AFB

valve Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 8.00...12.00

KSB/AFB

valve Volt: 12 Del. quantity cm3/: 6.0 1000S.: (6.5)

Full-load speed regulation

1/min: 1300 Speed

Charge press hPa: 1500

Del. quantity cm3/

1000s.: 72.00...78.00

KSB/AFB

valve Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 100.00...160.00

1000s.: 100.0 mind

KSB/AFB

Volt: 12 Valve

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara		‡	Overflow : quantity cm3/10s:	55.60139.00 (40.60154.00)
2nd speed 1/min:		+	•	
Charge press hPa:	1500	+	Delivery-quant. and	breakaway char.:
	3.604.40	+	-	·
	(3.394.70)	+		
KSB/AFB		+	1nd speed 1/min:	550
valve Volt:		+	Charge-air pressure	-settina
3rd speed 1/min:		+	point hPa:	400
Charge press hPa:	1500	+	KSB/AFB	
TD travel mm:	2.002.40	+	valve Volt:	12
	(1.502.90)	+	Del. quantity cm3/:	
KSB/AFB		+		(81.5086.50)
valve Volt:	12	+	2nd speed 1/min:	
4th speed 1/min:	750	1	Charge press. hPa:	
Charge press hPa:	1500	1	KSB/AFB	.555
TD travel mm:	0.601.40	1	vaive Volt:	12
mm:	(0.301.70)	1	Del. quantity cm3/:	
KSB/AFB		1		(0.003.00)
valve Volt:	12	1	3rd speed 1/min:	1340
5th speed 1/min:		1	Charge press. hPa:	
	1500	1	KSB/AFB	1300
TD travel mm:		1	valve Volt:	12
mm:	(4.505.30)	1	Del. quantity cm3/:	
KSB/AFB	(4.303.30)	I	1000S.:	
valve Volt:	12	Ι	5th speed 1/min:	
vatve vott.	12	Ι	Charge press. hPa:	
Supply-pump pressur	e characteristic:	Ι	KSB/AFB	1500
pubbly bank bi casa.	e character 15th.	Ι	valve Volt:	12
1st speed 1/min:	550	Ι	Del. quantity cm3/:	72 00 78 00
Charge press. hPa:		Τ	1000s.:	
Supply—pump	1500	T	8th speed 1/min:	
	4.905.50	T		
KSB/AFB	4.70	T	Charge press. hPa: KSB/AFB	נאטכו
valve Volt:	12	T		10
2nd speed 1/min:		T	valve Volt:	
Charge press. hPa:		T	Del. quantity cm3/:	77.00103.00 (05.00 405.00)
Supply—pump	1500	T		(95.00105.00)
	6.407.00	T		1500
KSB/AFB	0.407.00	T	Charge press. hPa: KSB/AFB	1300
valve Volt:	12	T		12
3rd speed 1/min:		T	valve Volt:	
	1500	T	Del. quantity cm3/:	
Supply—pump	1200	T		(99.50107.50)
	8.108.70	T	12th speed 1/min:	
KSB/AFB	0.100.70	T	Charge press. hPa: KSB/AFB	1500
valve Volt:	12	T		10
valve voit.	12	1	valve Volt:	
Overlow quantity at	overflou valve.	T	Del. quyntity cm3/:	(405 50 440 50)
over tow quarterty at	over tow valve.	T	15th apped 1/min.	(105.50110.50)
1st speed 1/min:	550	T	15th speed 1/min:	
		T	Charge press. hPa:	1500
Charge press. hPa: KSB/AFB	_	+	KSB/AFB	12
valve Volt:	12	1	valve Volt:	
		T	Del. quantity cm3/:	(111.50116.50
	41.7086.10	T		(110.00118.00)
quantity cm3/10s: 2nd speed 1/min:	(26.70101.10)	T	17th speed 1/min:	
Charge press. hPa:		T		1500
KSB/AFB	1700	T	KSB solenoid-operat	
	12	T	valve volt:	16
valve Volt:	16	+		

Del. quantity cm3/: 110.00...115.00 Shutoff 1000H.: (108.50...116.50) 1/min: 550 18th speed Charge press. hPa: -KSB/ĀFB valve Volt: 12 Del. quantity cm3/: 60.50...61.50 1000s.: (58.00...64.00) Cut-in 20th speed 1/min: 550 min voltage Charge press. hPa: 1500 Rated voltage KSB/AFB valve Volt: 12 Del. quantity cm3/: 109.50...118.50 1000s.: (108.00...120.00) Designation Κ KF Mech. shutoff: Mech. Abstellung: MS1 Ya 1st speed 1/min: 1200 Υb Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) KSB/AFB position valve Volt: 12 Idle delivery: 1st speed 1/min: 400 KSB/AFB valve Volt: 12 position Del. quantity cm3/: 13.00..17.00 1000s.: (10.00...20.00) Dispersion cm3/: 6.01000s.: (6.5) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: position 1st speed 1/min: 330 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...105.00 1000s.: position 1/min: 430 2nd speed Del. quantity cm3/: 40.00...80.00 1000s.: -1/min: 100 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 44.00...46.00 L 1000s.: (37.00...53.00) 1/min: 100 4th speed

electromagnet Volt: 12 Del. quantity cm3/: 100.0...160.0 V 1000s.: -Shutoff electromagnet: : 10.0 : 12.0 Mounting and assembly dimensions: mm: mm: KOT mm: 1.3...1.6 mm: 37.4...40.4 mm: 35.4...40.6 Ya = Distance between VE flange and speed-control lever in idle Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed Measurement point = edge of control lever on distributor-head end Pump with slave plunger Starting delivery check V = Speed-control lever in full-load Starting delivery check L = Speed-control lever in idle

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

Edition : 10.06.94

replaces

: ISO-4113 Calibrating oil

Injection pump : VE4/12F1150R587 Type number : 0 460 424 105

Customer Part-No.:

Customer-specific information

Customer

: MAN

Engine

: "DI" 0824 LUE 521

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil

°C return temp.

with thermometer : 40.00...48.00 Electronically : 42.30...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 900 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900

hPa: 1000 Charge press

Setting value bar: 6.70...7.30

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 107.50...108.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 450

Del. quantity cm3/

1000s.: 62.50...63.50

11

KSB/AFB Volt: 12 valve

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 18.00...22,00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 1230 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 72.00...78.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Charge press. hPa: 1000 Supply-pump Start: bar: 7.10...7.70 pressure Speed 1/min: 100 Del. quantity cm3/: 90.00...150.00 KSB/AFB valve Volt: 12 1000s.: 90.00 mind Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 Valve Shutoff Overlow quantity at overflow valve: electromagnet Volt: 12 1st speed 1/min: 450 Inspection-pump test specifications Test specifications in parentheses Charge press. hPa: - KSB/AFB valve Volt: 12 Timing-device characteristic: Shutoff electromagnet Volt: 12 źná speed 1/min: 1600 : 41.70...86.10 Overflow | cm3/10s: (26.70...101.10) Charge press hPa: 1000 quantity mm: 2.40...3.20 TD travel 1/min: 1150 2nd speed mm: (2.10...3.50) Charge press. hPa: 1000 KSB/AFB KSB/AFB valve Volt: 12 valve Volt: 12 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 3rd speed 1/min: 900 Charge press hPa: 1000 TD travel mm: 1.80...2.20 mm: (1.30...2.70) : 55.60...139.00 Overflow | cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: KSB/AFB valve Volt: 12 Shutoff 1nd speed 1/min: 450 electromagnet Volt: 12 Charge-air pressure-setting 1/min: 800 4th speed point hPa: 400 Charge press hPa: 1000 KSB/AFB mm: 0.80...1.60 TD travel Volt: 12 valve mm: (0.50...1.90) Shutoff KSB/AFB electromagnet Volt: 12 Del. quantity cm3/: 89.50...90.50 1000s.: (86.50...93.50) val.ve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1350 2nd speed Charge press. hPa: 1000 Supply-pump pressure characteristic: KSB/AFB valve Volt: 12 1st speed 1/min: 450 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 1320 Supply-pump bar: 4.70...5.30 pressure KSB/AFB valve Volt: 12 Charge press. hPa: 1000 Shutoff KSB/AFB electromagnet Volt: 12 2nd speed 1/min: 900 valve Volt: 12 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Supply-pump Del. quantity cm3/: 0.00...15.00 bar: 6.70...7.30 pressure 1000s.: (0.00...15.00) KSB/AFB 1/min: 1270 4th speed Volt: 12 valve Charge press. hPa: 1000 Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12

3rd speed

1/min: 1000

Shutoff	44	+	Shutoff		
electromagnet Volt:		+	electromagnet	volt:	12
Del. quantity cm3/:	15.0055.00	+	KSB/AFB		
1000s.:	(15.0055.00)	+	valve	Volt:	12
5th speed 1/min:	1230	+			
Charge press. hPa:		1	Electr. shuto	rf.	
KSB/AFB		1	eccur, singe	, , ,	
valve Volt:	12	T	1st speed	1 /	700
	16	T		1/min:	
Shutoff	40	+	Del. quantity	cm3/:	0.003.00
electromagnet Volt:		+		000\$.:	(0.003.00)
Del. quantity cm3/:		+	Shutoff		
1000s.:	(66.5083.50)	+	electromagnet	volt:	_
9th speed 1/min:	1150	1	KSB/AFB		
Charge press. hPa:		1		Volt:	12
KSB/AFB		1	vacve	voct.	12
valve Volt:	12	T	بسيدية المام المام	_	
	12	T	Idle delivery:	:	
Shutoff	40	+			
electromagnet Volt:		+		1/min:	300
Del. quantity cm3/:	95.00100.00	+	KSB/AFB		
1000s.:	(93.50101.50)	+	valve	Volt:	12
10th speed 1/min:		1	Shutoff		12
Charge press. hPa:		1		Vale	12
	1000	T	electromagnet		
KSB/AFB	46	+			18.0022.00
valve Volt:	12	+	10	000s.:	(13.5026.50)
Shutoff		+	Dispersion	cm3/:	6.0
electromagnet Volt:	12	1		000s.:	
Del. quantity cm3/:	98 50 103 50	1		1/min:	
10000	(97.00105.00)	T		1701111.	400
10005.;	900	T	KSB/AFB		4.5
12th speed 1/min:		+		Volt:	12
Charge press. hPa:	1000	+	Shutoff		
KSB/AFB		+	electromagnet	Volt:	12
valve Volt:	12	1	Del. quantity		
Shutoff	. •	1			(0.003.60)
electromagnet Volt:	12	T	11	٠. ډر،ند	(0.005.00)
Dol anatity or 7/	107 ED 400 ED	T	A		C
Del. quyntity cm3/:	107.50108.50	†	Automatic star	rting '	fuel delivery:
	(105.50110.50)	+			
18th speed 1/min:	450	+	1st speed 1	1/min:	170
Charge press. hPa:	-	+	KSB/AFB		
KSB/AFB		1	valve	Volt:	12
valve Volt:	12	T		voct.	12
	12	T	Shutoff		10
Shutoff		+	electromagnet		
electromagnet Volt:		+	Del. quantity	cm3/:	90.00150.00
Del. quantity cm3/:	62.5063.50	+	10	000s.:	(90.00150.00)
1000s.:	(60.0066.00)	1			
20th speed 1/min:		1	2nd speed 1	/min:	220
Charge press. hPa:		T	KSB/AFB	17 1111111	ددن
	1000	T			40
KSB/AFB	10	†		Volt:	12
valve Volt:	12	+	Shutoff		
Shutoff		+	electromagnet	Volt:	12
electromagnet Volt:	12	1	Del quantity	cm3/.	30.0090.00
Del. quantity cm3/:		1			(30.0090.00)
	(106.00118.00)	Ŧ	10		(30.0098.00)
19003.1	(100.00110.00)	T	/ 	1.12	400
AA t t		+		l/min:	100
Mech. shutoff:		+	KSB/AFB		
Mech. Abstellung:		+	valve	Volt:	12
3 *		+	Shutoff		·
1st speed 1/min:	1150	\perp	electromagnet	Val+.	12
Charge press. hPa:		T	Pol maritim	volt:	00 00 450 00
		T	ver. quantity	CM3/:	90.00150.00
Del. quantity cm3/:		+	10	JUUS.:	(90.00150.00)
1000s.:	(0.003.00)	+			

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 mm: KOT mm: 1.0...1.3 SVS max. mm: 3.2 mm: 41.8...44.8 Yb mm: 39.1...44.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Pump with slave plunger

Note inst. in remarks column

Test scheet : PEN

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F2050L607 Type number : 0 460 424 106

Customer Part-No. :

Customer-specific information

Customer : PENTA

: AD/TAMD 31 CE "DI" Engine

Power KW: 110

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1600

Charge press. hPa: 1000 Setting value mm: 2.60...2.80

Supply-pump pressure

Speed 1/min: 1600 Charge press hPa: 1000

Setting value bar: 6.70...7.30

Full-load del. with charge press.:

1/min: 1800 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 77.50...78.50 cm3/: 5.0

Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 43.50...44.50

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 12.00...16.00

Del. quantity cm3/: 6.0

1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 2250 Charge press hPa: 1000 Del. quantity cm3/ 1000S.: 28.00...32.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 45.00...95.00

1000s.: 45.00 mind

Inspection—pump test specifications Test specifications in parentheses

Timing device characteristic:

2nd speed 1/min: 1700

Charge press hPa: 1000

mm: 3.00...3.60 TD travel mm: (2.60...4.00)

3rd speed 1/min: 1600 hPa: 1000

Charge press mm: 2.60...2.80 TD travel

mm: (2.00...3.40)
4th speed 1/min: 1400
Charge press hPa: 1000

mm: 0.80...1.40 TD travel

mm: (0.40...1.80)

	+ Mech. shutoff:
Supply-pump pressure characteristic:	Mech. Abstellung:
1st speed 1/min: 2050	1st speed 1/min: 2050
Charge press. hPa: 1000	+ Charge press. hPa: 1000
Supply-pump	+ Del. quantity cm3/: 0.003.00
pressure bar: 8.308.90	† 1000s.: (0.003.00)
2nd speed 1/min: 1600	†
Charge press. hPa: 1000	+ Electr. shutoff:
Supply-pump pressure bar: 6.707.30	104 00004 1/1/11 /00
3rd speed 1/min: 750	+ 1st speed 1/min: 400 + Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000s.: (0.003.00)
Supply-pump	Shutoff
pressure bar: 4.204.80	+ electromagnet volt: 12
	+
Overlow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 600	1st speed 1/min: 400
Charge press. hPa: -	+ Del. quantity cm3/: 12.0016.00
Overflow : 88.90133.40	10005.: (9.0019.00)
quantity cm3/10s: (73.90159.40)	+ Dispersion cm3/: 6.0
2nd speed 1/min: 2050	10005.: (6.0)
Charge press. hPa: 1000	+ 2nd speed 1/min: 500
Overflow : 111.20194.60	+ Del. quantity cm3/: 0.003.00
quantity cm3/10s: (96.20209.60)	† 1000s.: (0.003.00)
Delivery-quant. and breakaway char.:	Automatic starting fuel delivery:
The second secon	+
	1st speed 1/min: 300
1nd speed 1/min: 900	+ Del. quantity cm3/: 70.00110.00
Charge air pressure setting	† 1000s.: (70.00110.00)
point hPa: 400	+
Del. quantity cm3/: 62.0063.00	+ 2nd speed 1/min: 500
1000S.: (59.5065.50)	+ Del. quantity cm3/: 20.0050.00
2nd speed 1/min: 2320 Charge press. hPa: 1000	† 1000s.: (20.0050.00)
Del. quantity cm3/: 0.003.00	the aread 1/min. 100
10008.: (0.003.00)	+ 4th speed 1/min: 100 + Del. quantity cm3/: 45.0095.00
5th speed 1/min: 2250	1000s.: (45.0095.00)
Charge press. hPa: 1000	10003 (43.0093.00)
Del. quantity cm3/: 28.0032.00	+ Shutoff electromagnet:
1000s.: (24.0036.00)	+ Cook and the coo
9th speed 1/min: 2050	∔ Cut−in
Charge press. hPa: 1000	+ min voltage : 10.0
Del. quantity cm3/: 74.0077.00	+ Rated voltage : 12.0
1000s.: (72.5078.50)	+
12th speed 1/min: 1800	† Mounting and assembly dimensions:
Charge press. hPa: 1000	†
Del. quyntity cm3/: 77.5078.50	+ Designation
1000s.: (75.5080.50)	+ K mm: 3.23.4
18th speed 1/min: 600 Charge press. hPa: -	+ KF mm: KOT + MS1 mm: 1.51.8
Del. quantity cm3/: 43.5044.50	+ MS1 mm: 1.51.8 + Ya mm: 37.239.2
10008.: (41.5046.50)	+ Yb mm: 49.557.7
20th speed 1/min: 750	Han. 47.331.1
Charge press. hPa: 1000	+ Remarks:
Del. quantity cm3/: 73.5078.50	:
1000\$.: (71.0081.00)	+ :
	+ Ya = Distance between VE flange and

speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Note inst. in remarks column

Test scheet

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R265-2

Type number : D 460 426 183

Customer Part-No.:

Customer-specific information

Customer : SNF

Engine : WD 612.02/04

Power KW: 100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 1.50...1.90

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

1/min: 1000

Del. quantity cm3/

1000s.: 90.50...91.50

cm3/: 3.5 Dispersion

1000s.: (3.5)

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 16.00...20.00 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 90.00...140.00 mind 1000s.: 90.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200

TD travel mm: 3.10...3.90

mm: (2.80...4.20)

3rd speed 1/min: 800

TD travel

mm: 1.50...1.90 mm: (1.00...2.40)

1/min: 600 5th speed

mm: 0.20...1.00 TD travel

mm: (0.00...1.30)

Supply-pump pressure characteristic:

1st speed 1/min: 1200

Supply-pump

bar: 7.20...7.80 pressure

2nd speed 1/min: 800

Supply-pump

bar: 5.50...6.10 pressure

1/min: 600 3rd speed

Supply-pump

pressure bar: 4.50...5.10

Overlow quantity at overflow valve:

1st speed 1/min: 500 1/min: 100 4th speed : 41.70...86.10 Overflow Del. quantity cm3/: 90.00...140.00 quantity cm3/10s: (26.70...101.10) 1000s.: -2nd speed 1/min: 1200 Overflow : 55.60...139.00 Shutoff electromagnet: quantity cm3/10s: (40.60...154.00) Cut-in Delivery-quant, and breakaway char.: min voltage Rated voltage 1rid speed 1/min: 1380 Mounting and assembly dimensions: Del. quantity cm3/: 0.00...3.00 1000s.: -Designation 1/min: 1300 2nd speed mm: 3.2...3.4 Del. quantity cm3/: 21.00...27.00 KF mm: 5.6...6.0 10005:: (18.00...30.00) 3rd speed 1/min: 1250 Del. quantity cm3/: 60.00...100.00 1.3...1.5 MS SVS max. mm: 5.4 mm: 37.2...39.2 Ya 1000s.: mm: 53.8...62.2 Yb 1/min: 1200 4th speed Del. quantity cm3/: 87.50...90.50 1000s.: (86.70...91.30) Remarks: 1/min: 1000 5th speed Del. quantity cm3/: 90.50...91.50 1000s.: (88.70...93.30) Ya = Distance between VE flange and speed-control lever in idle 6th speed 1/min: 500 position Del. quantity cm3/: £8.0G...90.00 1000S.: (87.00...92.00) Measurement point = edge of control Lever on drive end Mech. shutoff: Mech. Abstellung: Yb = Distance between VE flange and speed-control lever in rated speed 1st speed 1/min: 1200 position Del. quantity cm3/: 0.00...3.00 Measurement point = edge of control 1000s.: (0.00...3.00) lever on distributor-head end Idle delivery: 1st speed 1/min: 300
Del. quantity cm3/: 16.0...20.0
1000S.: (14.0...22.0)
Dispersion cm3/: 3.5 1000s.: (3.5) 1/min: 350 2nd speed Del. quantity cm3/: 4.50...10.50 1000s.: (3.50...11.50) 1/min: 400 3rd speed Del. quantity cm3/: 0.00...3.00 1000s.: -Automatic starting fuel delivery: 1/min: 280 1st speed Del. quantity cm3/: 65.00...85.00 1000s.: -2nd speed 1/min: 150 Del. quantity cm3/: 100.0...150.0 1000s.: -

Note inst. in remarks column

Test scheet

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200L385-4 Type number : 0 460 426 214

Customer Part-No. :

Customer-specific information Customer : MAXION

Engine : T 6.354

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.(0...50).00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

Pressure bar: 172.00...175.00

Perforated-plate

mm: 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 700

Setting value mm: 1.70...2.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/ 1000s.: 101.5...102.5

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 10005.: (5.0)

Full-load speed regulation

1/min: 1210 Speed

Del. quantity cm3/

1000s.: 82.00...83.00

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...135.00

1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

1/min: 1050 mm: 2.90...3.70 TD travel

mm: (2.60,..4.00) electromagnet Volt: 12 2nd speed 1/min: 700

mm: 1.70...2.10 TD travel mm: (1.20...2.60)

Shutoff

electromagnet Volt: 12 1/min: 500 3rd speed

mm: 0.40...1.20 mm: (0.30...1.30) TD travel

Del. quantity cm3/: 92.00...98.00 1000S:: (90.00...100.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: 1st speed 1/min: 1050 Electr. shutoff: Supply-pump pressure bar: 6.90...7.50 Shutoff electromagnet Volt: 12 2nd speed 1/min: 700 1000s.: -Shutoff Supply-pump electromagnet volt: pressure bar: 5.70...6.30 Shutoff Idle delivery: electromagnet Volt: 12 3rd speed 1/min: 500 1st speed 1/min: 300 Supply-pump Shutoff bar: 4.90...5.50 pressure Shutoff electromagnet Volt: 12 1000s.: (5.0) 1/min: 250 Overlow quantity at overflow valve: 2nd speed 1/min: 500 1st speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.0...29.0 1000s.: (19.0...31.0) 3rd speed 1/min: 400 electromagnet Volt: 12 Overflow : 41.70...86.10 cm3/10s: (26.70...101.10) 1/min: 1050 quantity 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 : 55.60...139.00 1000s.: -Overflow quantity cm3/10s: (40.60...154.00) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1/min: 210 1st speed Shutoff 1nd speed 1/min: 1210 electromagnet Volt: 12 Shutoff Del. quantity cm3/: 45.00...85.00 electromagnet Volt: 12 Del. quantity cm3/: 28.0...52.00 1000s.: -1000s.: -2nd speed 1/min: 100 2nd speed 1/min: 1210 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity_cm3/: 82.00...88.00 Del. quantity cm3/: 95.0...135.0 1000s.: -1000s.: (79.00...91.00) 3rd speed 1/min: 1050 Shutoff electromagnet: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 111.0...115.00 1000\$.: (99.50...116.50) Cut-in min voltage : 10.0 Rated voltage : 12.0 1/min: 700 4th speed Shutoff Mounting and assembly dimensions: electromagnet Volt: 12 Del. quantity cm3/: 101.5...102.5 KF mm: 5.0...5.4 1000s.: (99.0...105.0) 1/min: 500 MS mm: 0.8...1.2 5th speed mm: 29.0...31.0 Ya Shutoff mm: 59.0...67.0 Yb

electromagnet Volt: 12

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

7b = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R596 Type number : 0 460 426 236

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : 1006 E.6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 1.30...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 6.3...6.9

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 300

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000S.: 10.5...11.50

shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1525

Del. quantity cm3/

1000s.: 31.0...35.0

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 90.00...150.00

1000s.: 90.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed

mm: 3.0...3.6 mm: (2.6...4.0) TD travel

electromagnet Volt: 12 2nd speed 1/min: 1100 TD travel mm: 2.00...2.60

mm: (1.60...3.00)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1000

TD travel mm:	1.301.50	+ Shutoff
	(0.702.10)	electromagnet Volt: 12
Shutoff	,	+ Del. quantity cm3/: 60.564.5
electromagnet Volt:		1000s.: (59.066.0)
4th speed 1/min:		† 5th speed 1/min: 700
TD travel mm:	0.100.70	+ Shutoff
	(0.001.10)	+ electromagnet Volt: 12
Shutoff		+ Del. quantity cm3/: 57.558.5
electromagnet Volt:	12	1000s.: (55.061.0)
_	•	4 6th speed 1/min: 500
Supply-pump pressure	e characteristic:	+ Shutoff
		electromagnet Volt: 12
1st speed 1/min:	1300	Del. quantity cm3/: 49.053.0
Supply-pump		10008.: (47.554.5)
	7.808.40	7th speed 1/min: 300
Shutoff		Shutoff
electromagnet Volt:	12	electromagnet Volt: 12
2nd speed 1/min:		Del. quantity cm3/: 42.043.0
Supply-pump	, 00	10008.: (38.546.5)
	6.306.90	10003 (30.340.3)
Shutoff	0.500.70	Mech. shutoff:
electromagnet Volt:	12	T Mech. Shutorr.
3rd speed 1/min:		Electr. shutoff:
Supply—pump		Electr. Shutoff:
pressure bar:	4.605.20	T 1st speed 1/min. 775
Shutoff	4.005.20	1st speed 1/min: 375
	12	Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	10008.: (0.003.00)
Oranlar minutity at		Shutoff
Overlow quantity at	over tow valve:	electromagnet volt: -
1st speed 1/min:	700	Tallo dolávom v
Shutoff		Idle delivery:
electromagnet Volt:	12	1 104 0000 1/200 775
Overflow :	75.00 440.70	1st speed 1/min: 375
quantity cm3/10s:		Shutoff
		electromagnet Volt: 12
2nd speed 1/min:	1300	Del. quantity cm3/: 10.511.5
Shutoff		1000s.: (6.0016.00)
electromagnet Volt:		Dispersion cm3/: 5.0
Overflow :	97.30180.70	1000s.: (5.0)
quantity cm3/10s:	(82.30195.70)	2nd speed 1/min: 450
5.1.		Shutoff
Delivery-quant. and	breakaway char.:	electromagnet Volt: 12
	-	bel. quantity cm3/: 0.003.00
		† 1000s.: (0.003.00)
1nd speed 1/min:	1600 -	<u>†</u>
Shutoff	•	Automatic starting fuel delivery:
electromagnet Volt:		+
Del. quantity cm3/:		1st speed 1/min: 250
1000s.:		+ Shutoff
2nd speed 1/min:	1525	+ electromagnet Volt: 12
Shutoff	-	- Del. quantity cm3/: 15.0045.00
electromagnet Volt:		1000s.: -
Del. quantity cm3/:	31.035.0	+
1000S.:	(25.041.0)	- 2nd speed 1/min: 100
3rd speed 1/min:	1450 -	- Shutoff
Shutoff	-	electromagnet Volt: 12
electromagnet Volt:	12	Del. quantity cm3/: 90.0150.0
Del. quantity cm3/:		1000s.: -
1000s.:		+
4th speed 1/min:		Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 kF mm: KOT mm: 1.0...1.4 Ya mm: 31.5...33.5 Yb mm: 54.3...62.6

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PER Edition : 13.06.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R240-3 Type number : 0 460 426 239

Customer Part-No. :

Customer—specific information Customer : PERKINS

Engine : PHASER 180 TI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.25

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 0.40...1.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 98.50...99.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 86.50...87.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 16.5...20.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1460 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 120.0...160.0

mind 1000s.: 120.0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	† Charge-air pressure-setting
4	+ point hPa: 400
1st speed 1/min: 1300	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
Tb travel mm: 2.22.6	† Dal. quantity cm3/: 94.0095.00
mm: (1.73.1)	+ 1000s.: (91.0098.00)
electromagnet Volt: 12	† 2nd speed 1/min: 1580
2nd speed 1/min: 1100	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Shutoff
TD travel mm: 1.101.90	+ electromagnet Volt: 12
mm: (0.802.20)	+ Del. quantity cm3/: 0.007.00
Shutoff	+ 1000s.: (0.007.00)
electromagnet Volt: 12	- 3rd speed 1/min: 1450
3rd speed 1/min: 1000	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Shutoff
TD travel mn: 0.401.20	electromagnet Volt: 12
mm: (0.101.50)	Del. quantity cm3/: 47.0053.00
Shutoff	1000s.: (44.0056.00)
electromagnet Volt: 12	
ecectrollagnet voct. 12	
Simple with property observations.	+ Charge press. hPa: 1000
Supply-pump pressure characteristic:	+ Shutoff
1st smood 1/min. 500	+ electromagnet Volt: 12
1st speed 1/min: 500	+ Del. quantity cm3/: 95.0098.00
Charge press. hPa: 1000	† 1000s.: (93.0100.0)
Supply-pump 7.00 / 50	+ 6th speed 1/min: 700
pressure bar: 3.904.50	+ Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1000	+ Del. quantity cm3/: 86.587.5
Charge press. hPa: 1000	1000\$.: (84.090.0)
Supply-pump	+ 7th speed 1/min: 700
pressure bar: 6.106.70	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 1300	Del. quantity cm3/: 98.599.5
Charge press. hPa: 1000	10005.: (96.0102.0)
Supply-pump	100000
pressure bar: 7.307.90	+ Mecin. shutoff:
Shutoff	+ Mech. Abstellung:
electromagnet Volt: 12	T meeti. Abstettung.
ecces anagree voce. In	1st speed 1/min: 1300
Overlow quantity at overflow valve:	
over the quartity at over the valve.	tharge press. hPa: -
1ct amond 1/min. 500	† Del. quantity cm3/: 0.003.00
1st speed 1/min: 500	1000s.: (0.003.00)
Charge press. hPa: 1000	+ Shutoff
Shutoff	+ electromagnet volt: 12
electromagnet Voit: 12	† _,
Overflow : 41.7086.10	+ Electr. shutoff:
quantity cm3/10s: (26.70101.10)	†
2nd speed 1/min: 1300	+ 1st speed 1/min: 300
Charge press. hPa: 1000	+ Charge press. hPa: -
Shutoff	† Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	+ 1000s.: (0.003.00)
Overflow : 55.60139.00	+ Shutoff
quantity cm3/10s: (40.60154.00)	+ electromagnet volt: -
	+ "
Delivery-quant. and breakaway char.:	Idle delivery:
•	+
	+ 1st speed 1/min: 300
1nd speed 1/min: 700	
• The state of the	•

electromagnet Volt: 12 Del. quantity cm3/: 16.50...20.50 1000s.: (13.50...23.50) Dispersion cm3/: 5.0 1000s.: (5.0) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.5...10.5 10005.: (2.5...12.5) Automatic starting fuel delivery: 1st speed 1/min: 230 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: -2nd speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.0 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.0 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: KF mm: KOT MS1 mm: 1.0...1.3 SVS max. mm: 6.0 mm: 37.2...39.2 Ya mm: 50.4...58.6 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and

speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Shutoff

Note inst. in remarks column

Test scheet :

Edition : 14.06.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/8F230UR598 Type number : 0 460 484 074

Customer Part-No. :

Customer—specific information Customer : RENAULT

Engine : F8Q - 620

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °(

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina .

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery
Prestroke mm: (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 32.3...33.3

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410

Del. quantity cm3/

1000s.: 7.5...11.5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450

Del. quantity cm3/

1000s.: 24.5...30.5

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...70.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm3/

difference 1000s.: -9.0...-15.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1. Speed 1/min: 1250

TD-travel	+ Shutoff
difference mm: -1.41.6 #	+ electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 0.005.00
electromagnet Volt: 12	1000s.: (0.005.00)
	3rd speed 1/min: 2650
Inspection-pump test specifications	Shutoff
Test specifications in parentheses	electromagnet Volt: 12
Troub specificacions in parcheticaes	Del. quantity cm3/: 6.5014.50
Timing device characteristic:	1000s.: (5.5015.50)
Thirting device character 15t va.	
1st speed 1/min: 2000	
	- Shutoff
	electromagnet Volt: 12
mm: (5.56.7)	Del. quantity cm3/: 24.530.5
electromagnet Volt: 12	10008.: (23.531.5)
2nd speed 1/min: 1250	- 5th speed 1/min: 2250
TD travel mm: 3.53.9	- Shutoff
mm: (3.24.2)	+ electromagnet Volt: 12
Shutoff	Poel. quantity cm3/: 32.334.3
electromagnet Volt: 12	1000s.: (31.035.6)
3rd speed 1/min: 600	+ 6th speed 1/min: 2000
TD travel mm: 0.81.6	Shutoff
mm: (0.61.8)	electromagnet Volt: 12
Shutoff -	Del. quantity cm3/: 32.334.3
electromagnet Volt: 12	10008.: (31.035.6)
	7th speed 1/min: 1650
Supply-pump pressure characteristic:	- Shutoff
and a femilia by account a contract to the	electromagnet Volt: 12
1st speed 1/min: 2000	Del. quantity cm3/: 30.133.1
Supply-pump -	1000s.: (29.333.9)
pressure bar: 7.207.80	
Shutoff Shutoff	8th speed 1/min: 1250
	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1250	Del. quantity cm3/: 32.3033.30
Supply-pump - 5.48 5.79	1000s.: (30.5035.10)
pressure bar: 5.105.70	9th speed 1/min: 600
Shutoff -	Shutoff
electromagnet Volt: 12	f electromagnet Volt: 12
3rd speed 1/min: 600 -	- Del. quantity cm3/: 31.5034.50
Supply-pump -	1000s.: (30.7035.30)
pressure bar: 3.303.90	+
Shutoff -	- Mech. shutoff:
electromagnet Volt: 12	<u> </u>
-	- Electr. shutoff:
Overlow quantity at overflow valve: -	_
•	1st speed
1st speed 1/min: 600 -	- Del. quantity cm3/: 0.003.00
Shutoff -	10008.: (0.003.00)
electromagnet Volt: 12	Shutoff
Overflow : 41.7086.10	- electromagnet volt: -
quantity cm3/10s: (26.70101.10) -	- Court Singfiet Vott.
2nd speed 1/min: 2250 -	Damper set qty.:
Shutoff -	L valiper set qty
electromagnet Volt: 12	LFG-setting:
Overflow : 55.60139.00 -	solidale con carcassa:
quantity cm3/10s: (40.60154.00)	
quantity (1107-105, (40.00134.007)	Idle delivery:
Dalivary and branks are then	104 00000 0/0000 /40
Delivery—quant. and breakaway char.:	1st speed 1/min: 410
-	Shutoff
2nd chand 1/min. 2050	electromagnet Volt: 12
2nd speed 1/min: 2950 -	†

Del. quantity cm3/: 7.50...11.50 1000s.: (5.50...13.50) High Idle: 1st speed 1/mi: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000S.: (5.00...13.00) Residual: 1.Rotacao 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.00...5.00 1000s.: (1.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 1st speed Inj.-qty. cm3/ : -7.0...-9.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Inj.-qty. cm3/: 2.0...8.0 ' Z difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.6...-2.2 ' difference mm: -Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1250 1st speed Supply pumppressure : -0.1...-0.3 " Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 310 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -2nd speed 1/min: 210 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 45.0...75.0 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K mm: 5.4 KF MS mm: 1.1...1.5 mm: 32.6...36.6 Ya mm: 67.1...79.9 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S. Z = Absolute delivery

Pump with slave plunger

MO3

Note inst. in remarks column

: VWW Test scheet

: 14.06.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L525-4

Type number : 0 460 485 015

Customer Part-No. :

Customer—specific information

Customer

Engine : 2,41 WK-SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Setting value bar: 7.10...7.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 35.0...36.0

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 415

Del. quantity cm3/

1000s.: 7.0...9.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 540 Speed

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...75.00

1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed

Inj.-qty. cm3/

difference 1000s.: -6.5...-14.5 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel 1/min: 2600 2nd speed difference mm: -1.1...-1.3 #Shutoff Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff Timing device characteristic: 1/min: 1790 2nd speed TD travel mm: 5.90...6.70 Shutoff mm: (5.60...7.00) electromagnet Volt: 12 Del. quantity cm3/: 17.00...27.00 1000s.: (16.00...28.00) 9th speed 1/min: 2100 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 mm: 4.10...4.50 mm: (3.60...5.00) TD travel Shutoff Shutoff electromagnet Volt: 12 1/min: 1100 mm: 1.20...2.00 4th speed TD travel Shutoff mm: (0.90...2.30)Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.80...34.80 1000s.: (30.30...36.30) 1st speed 1/min: 1100 Supply-pump pressure bar: 5.90...6.50 Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstellung: 1/min: 1500 2nd speed Supply-pump 1st speed 1/min: 2100 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.09) pressure bar: 7.10...7.70 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1790 Shutoff electromagnet volt: 12 Supply-pump pressure bar: 7.80...8.40 Electr. shutoff: Shutoff electromagnet Volt: 12 1st speed 1/min: 415 Del. quantity cm3/: 0.00...3.00 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) Shutoff 1st speed 1/min: 600 electromagnet volt: -Shutoff electromagnet Volt: 12 Damper set qty.: : 41.70...83.40 Overflow quantity cm3/10s: (26.80...97.30) LFG-setting: 2nd speed 1/min: 2100 solidale con carcassa: Shutoff Idle delivery: electromagnet Volt: 12 : 55.60...152.90 Overflow 1/min: 415 1st speed cm3/10s: (40.70...167.90) quantity Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) Delivery-quant. and breakaway char.:

High Idle:

1st speed 1/mi: 465

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...9.00

1000s.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 540

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 6.50...7.50

1000s.: (5.00...9.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500

Inj.—qty. cm3/ : 0.0...3.0 ' Z

difference 1000s.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1500

: -1.5...-2.7 ' TD-travel

difference mm: -

Shutoff

electromagnet Volt: 12

SP press.—dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-

: -0.6...-1.4 ' pressure

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 17.00...37.00

1000s.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...75.00 1000s.: (35.00...75.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.6...6.0 mm: 1.3...1.5 MS Ya

mm: 32.8...34.8 mm: 61.5...68.5 Yb

Remarks:

Ya = Distance between VE flange and

speed-control lever in idle

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Note inst. in remarks column

Test scheet : ONA

Edition : 14.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F900R399 Type number : 0 460 494 266

Customer Part-No. :

Customer-specific information

Customer

: ONAN

Engine

: 4A 2.3 GEN.

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750

Setting value mm: 2.5...2.9

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 7500

M07

Setting value bar: 2.8...3.4

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 850 Speed

Del. quantity cm3/ 1000s.: 43.5...44.5

Shutoff

electromagnet Volt: 12 cm3/: 3.0Dispersion

1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 900

Del. quantity cm3/

1000s.: 34.5...38.5

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 55.00...85.00

1000s.: 55.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 850 1st speed

TD travel mm: 2.7...3.5

mm: (2.4...3.8)

electromagnet Volt: 12

2nd speed 1/min: 750 TD travel mm: 2.50...2.90

mm: (2.00...3.40)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 500

mm: 1.10...1.90 TD travel

mm: (0.80...2.20)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850

Supply-pump

bar: 3.10...3.70 pressure

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 750

Supply-pump

bar: 2.80...3.40 pressure

Shutoff Damper set qty.: electromagnet Volt: 12 3rd speed 1/min: 500 Automatic starting fuel delivery: Supply-pump bar: 1.80...2.40 pressure 1st speed 1/min: 350 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 25.00...55.00 Overlow quantity at overflow valve: 1000s.: -1/min: 500 1st speed 2nd speed 1/min: 250 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 41.70...83.40 Del. quantity cm3/: 60.00...90.00 1000s.: -Overflow | cm3/10s: (27.80...97.30) quantity 1/min: 850 2nd speed Shutoff 4th speed 1/min: 100 electromagnet Volt: 12 Shutoff : 41.70...133.30 Overflow electromagnet Volt: 12 cm3/10s: (26.70...148.90) Del. quantity cm3/: 55.00...85.00 quantity 1000s.: -Delivery-quant. and breakaway char.: Shutoff electromagnet: 3rd speed 1/min: 970 Cut-in Shutoff min voltage : 10.0 electromagnet Volt: 12 : 12.0 Rated voltage Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 4th speed 1/min: 940 Mounting and assembly dimensions: Shutoff Designation electromagnet Volt: 12 mm: 3.2...3.4 K Del. quantity cm3/: 0.00...7.00 1000s.: (0.00...7.00) KF mm: 5.6...6.0 mm: 1.8...2.0 MS 1/min: 900 5th speed mm: 59.0...67.0 Ya Shutoff mm: electromagnet Volt: 12 Del. quantity cm3/: 34.50...38.50 1000s.: (32.50...40.50) Remarks: 6th speed 1/min: 850 Shutoff Ya = Distance between VE flange and speed-control lever in idle electromagnet Volt: 12 Del. quantity cm3/: 43.50...44.50 1000s.: (42.00...46.00) 7th speed 1/min: 500 position Measurement point = edge of control lever on drive end Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...45.50 1000s.: (42.00...46.00) Mech. shutoff: Electr. shutoff: 1/min: 900 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -

Note inst. in remarks column

Test scheet : ONA

: 14.06.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F1300R315-1

Type number : 0 460 494 268

Customer Part-No. :

Customer-specific information

Customer

Engine

: 4 A 2.3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000

Setting value bar: 3.30...3.90

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1000

Del. quantity cm3/ 1000s.: 39.5...40.5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0

1000s.: (3.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 7.50...11.50

Shutoif

electromagnet Volt: 12 Del. quantity cm3/: 3.0

1000s.: (3.0)

Full-load speed regulation

1/min: 1350 Speed

Del. quantity cm3/

1000s.: 27.00...31.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...90.00

1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300

mm: 3.10...3.90 TD travel mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12 1/min: 1000 3rd speed

mm: 1.90...2.30 TD travel

mm: (1.40...2.80)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 800

mm: 0.80...1.60 TD travel

mm: (0.50...1.90)

Del. quyntity cm3/: 39.50...40.50 1000s.: (38.00...42.00) Shutoff electromagnet Volt: 12 20th speed 1/min: 500 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.50...38.50 1000s.: (34.50...39.50) 1st speed 1/min: 800 Supply-pump pressure bar: 2.70...3.30 Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 1000 Idle delivery: Supply-pump bar: 3.30...3.90 pressure 1st speed 1/min: 400 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Det. quantity cm3/: 7.50...11.50 1000s.: (6.00...13.00) Dispersion cm3/: 3.0 3rd speed 1/min: 1300 Supply-pump bar: 4.40...5.00 pressure 1000s.: (3.0) 1/min: 500 Shutoff electromagnet Volt: 12 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: : 41.70...83.40 Overflow | quantity cm3/10s: (26.70...98.40) 1st speed 1/min: 220 2nd speed 1/min: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 Overflow : 41.70...125.10 1000s.: (50.00...80.00) cm3/10s: (26.70...125.10) quantity 1/min: 350 2nd speed Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00) 2nd speed 1/min: 1480 Shutoff electromagnet Volt: 12 4th speed 1/min: 100 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...90.00 1/min: 1370 3rd speed Shutoff 1000s.: (50.00...90.00) electromagnet Volt: 12 Del. quantity cm3/: 10.00...40.00 Shutoff electromagnet: 1000s.: (10.00...40.00) 1/min: 1350 5th speed Cut-in Shutoff min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Shutoff Designation Κ mm: 3.1...3.4 mm: 5.6...6.0 KF mm: 0.9...1.3 mm: 37.2...39.2 mm: 27.5...32.5 MS Ya Shutoff electromagnet Volt: 12

M10

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yo = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet Edition : 14.06.94 replaces Calibrating oil : ISO-4113 Injection pump : VE4/9F2300R411 Type number : 0 460 494 270 Customer Part-No. : Customer-specific information Customer : NISSAN-MISA Engine : LD20 TEST BENCH REQUIREMENTS Calibrating-oil return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar : 0.30...0.40 Calibrating nozzle-holder : 1 688 901 022 assembly bar: 130.00...133.00 mm: 840 mm: -(from BDC): ~ Injection-pump setting values

Opening Pressure Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length Start of delivery Prestroke Test specifications in parentheses Timing-device travel 1/min: 1200 Speed Setting value mm: 3.30...3.70 AFB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Supply-pump pressure M12

1/min: 1200 Speed Setting value bar: 5.10...5.70 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. w/out charge press.: Speed 1/min: 2200 Del. quantity cm3/ 1000s.: 32.0...33.0 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0) Low-idle speed regulation Speed 1/min: 350 Del. quantity cm3/ 1000s.: 7.50...11.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0) Residual-Delivery Setting 1/min: 500 Del. quantity cm3/ 1000s.: 1.00...5.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load speed regulation Speed 1/min: 2600 Del. quantity cm3/ 1000s.: 12.00...18.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Start: Speed 1/min: 100 Del. quantity cm3/: 48.00...52.00 mind 1000s.: 48.00

Volt: 12

KSB/AFB Valve

Shutoff	+ Supply-pump
electromagnet Volt: 12	pressure bar: 8.208.80
Load-dependent start of delivery:	+ KSB/AFB + valve Volt: 12
Injqty.dif.measurement:	+ Shutoff
0 1 200	+ electromagnet Volt: 12
Speed 1/min: 900	+ 2nd speed 1/min: 1800
Injqty. cm3/ difference 1000S.: -8.612.6 #	+ Supply-pump + pressure bar: 6.8057.4
KSB/AFB	+ pressure bar: 6.8057.4 + KSB/AFB
valve Volt: 12	+ valve Volt: 12
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
TD-travel dif.measurement correttore anticipo iniezione (SV)	3rd speed 1/min: 1200
1. Speed 1/min: 900	+ Supply-pump + pressure bar: 5.105.70
TD-travel	+ KSB/AFB
difference mm: -0.70.9 #	+ valve Volt: 12
KSB/AFB	+ Shutoff
valve Volt: 12 Shuroff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ 4th speed 1/min: 900 + Supply-pump
ecceli diagnet vott. 12	+ pressure bar: 4.204.80
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	+ valve Volt: 12
	+ Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12
1st speed 1/min: 2300	Overlow quantity at overflow valve:
TD travel mm: 7.708.50	+
mm: (7.608.60)	1st speed 1/min: 600
KSB/AFB	+ KSB/AFB
valve Volt: 12	+ valve Volt: 12
electromagnet Volt: 12 2nd speed	+ Shutoff
TD travel mm: 6.006.80	+ electromagnet Volt: 12 + Overflow : 41.7083.40
mm: (5.707.10)	+ quantity cm3/10s: (26.8098.30)
KSB/AFB	+ 2nd speed 1/min: 2300
valve Volt: 12	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12 3rd speed	+ Shutoff + electromagnet Volt: 12
TD travel mm: 3.303.70	Overflow : 55.60152.90
mm: (2.804.20)	+ quantity cm3/10s: (41.70167.90)
KSB/AFB	+
valve Volt: 12	† Delivery-quant. and breakaway char.:
Shutoff electromagnet Volt: 12	†
4th speed 1/min: 900	1nd speed 1/min: 2850
TD travel mm: 1.502.30	+ KSB/AFB
mm: (1.202.60)	+ valve Volt: 12
KSB/AFB	+ Shutoff
valve Volt: 12	+ electromagnet Volt: 12
Shutoff electromagnet Volt: 12	+ Del. quantity cm3/: 0.005.00
Cecon anagner voct. 12	10005:: (0.005.00) 2nd speed 1/min: 2600
Supply-pump pressure characteristic:	KSB/AFB
	+ valve Volt: 12
1st speed 1/min: 2300	+ Shutoff
	+ electromagnet Volt: 12

	(10.519.5)	- KSB/AFB - valve Volt: 12
3rd speed 1/min; KSB/AFB	2400	- Electr. shutoff:
valve Volt: Shutoff	12	- 1st speed 1/min: 350
electromagnet Volt: Del. quantity cm3/:	12 20 5 37 5	- Del. quantity cm3/: 0.003.00 1000\$:: (0.003.00)
1000s.:	(28.039.0)	- Shutoff
4th speed 1/min: KSB/AFB		electromagnet volt: - - KSB/AFB
valve Volt: Shutoff	12	- valve Volt: 12
electromagnet Volt: Del. quantity cm3/:		Damper set qty.:
1000s.:	(32.337.3)	- LFG-setting:
5th speed 1/min: KSB/AFB	-	- solidale con carcassa: - Idle delivery:
valve Volt: Shutoff	4	- - 1st speed 1/min: 350
electromagnet Volt: Del. quantity cm3/:		- KSB/AFB - valve Volt: 12
	(31 2 33 2)	Chitaff
6th speed 1/min: KSB/AFB	1800	electromagnet Volt: 12Del. quantity cm3/: 7.511.5
Valve Volt: Shutoff	1800	- 1000s.: (5.513.5)
electromagnet Volt:	14	- High Idle:
Del. quantity cm3/: 1000s.:	32.034.0 (30.535.5)	- 1st speed 1/mi: 500
7th speed 1/min: KSB/AFB	1200	- KSB/AFB - valve Volt: 12
valve Volt:	12	- Shutoff
Shutoff electromagnet Volt:	12	electromagnet Volt: 12Del. quantity cm3/: 7.011.0
Del. quantity cm3/:	31.034.0 (30.035.0)	1000s.: (5.013.0)
8th speed 1/min: KSB/AFB		- Residual:
valve Volt: Shutoff	12	- 1.Rotacao 1/min: 500 - KSB/AFB
electromagnet Volt:		- valve Volt: 12
Del. quantity cm3/:	29.432.4 (28.433.4)	Shutoffelectromagnet Volt: 12
9th speed 1/min: KSB/AFB		- Del. quantity cm3/: 1.005.00 - 1000s.: (1.005.00)
valve Volt: Shutoff	12	Load-dependent start of delivery:
electromagnet Volt:	12	- Injqty.dif.measurement:
Del. quantity cm3/: 1000s.:	30.033.0 (29.034.0)	- - 1st speed 1/min: 1250
ما م	+	- Injqty. cm3/ : -6.58.5 "
Mech. shutoff: Mech. Abstellung:	-	- difference 1000s.: - - KSB/AFB
1st speed 1/min:	2700	- valve Volt: 12 - Shutoff
Del. quantity cm3/:		- Shutoff - electromagnet Volt: 12
1000s.:	(0.003.00)	- 2nd speed 1/min: 1250
Shutoff electromagnet volt:	12	- Inj.—qty. cm3/: 2.08.0

M14

KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -0.4...-1.4 ' mm: difference KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pumppressure : -0.1...-0.3 " difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 310 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -1/min: 210 2nd speed KSB/AFB valva Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...65.00 1000s.: -4th speed 1/min: 100 KSB/AFB valve **Volt: 12** Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.00...52.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation mm: 3.2...3.4 KF mm: 5.6...6.0 mm: 1.1...1.3 MS SVS max. mm: 3.1 mm: 30.8...34.8 Ya mm: 68.7...79.0 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

: PEU Test scheet : 14.06.94 Edition

replaces

Calibrating oil : ISO-4113

: VE4/9F2150R281-1 Injection pump : 0 460 494 276 Type number

Customer Part-No. :

Customer-specific information

Customer

: XUD11ATE-Y BVA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 1000 Setting value mm: 2.80...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 1000

Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 61.00...62.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Low-idle speed regulation

1/min: 325

Del. quantity cm3/ 1000s.: 12.0...14.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 49.00...55.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...80.00

1000s.: 70.00 mind

M16

Shutott	+ Overflow : 55.60139.00
electromagnet Volt: 12	quantity cm3/10s: (40.60154.00
Inspection-pump test specifications Test specifications in parentheses	Delivery-quant. and breakaway char.
Timing-device characteristic:	1nd speed 1/min: 750
2nd speed 1/min: 2000	Charge-air pressure-setting
Charge press hPa: 1000	point hPa: 400 LDA-stroke mm: 7.1
TD travel mm: 6.607.20	+ Shutoff
mm: (6.207.60)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 56.0057.00
electromagnet Volt: 12	+ 1000s.: (53.5059.50)
3rd speed 1/min: 1250	+ 2nd speed 1/min: 2700
Charge press hPa: 1000 TD travel mm: 2.803.00	Charge press. hPa: 1000
mm: (2.203.60)	+ Shutoff + electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 5.0011.00
electromagnet Volt: 12	10005.: (4.0012.00)
4th speed 1/min: 1000	+ 3rd speed 1/min: 2400
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 1.301.90	+ Shutoff
mm: (0.902.30)	+ electromagnet Volt: 12
Shutoff	bel. quantity cm3/: 33.5040.50
electromagnet Volt: 12	1000S.: (33.0041.00)
Supply-pump pressure characteristic:	+ 5th speed 1/min: 2250 + Charge press. hPa: 1000
outputy pump pressure than acter isett.	+ Shutoff
1st speed 1/min: 1000	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 49.0055.00
Supply-pump	+ 1000s.: (48.0056.00)
pressure bar: 4.304.90	+ 9th speed 1/min: 2000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1250 Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 56.00,59.00 + 1000S.: (55.2059.80)
pressure bar: 5.005.60	10th speed 1/min: 1000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 2000	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 60.5063.50
Supply-pump	10008.: (59.5064.50)
pressure bar: 7.107.70 Shutoff	11th speed 1/min: 500
electromagnet Volt: 12	+ Charge press. hPa: 1000 + Shutoff
eccotionagile voct. In	electromagnet Volt: 12
Overlow quantity at overflow valve:	+ Del. quantity cm3/: 59.062.0
	10008.: (58.063.0)
1st speed 1/min: 500	+ 12th speed 1/min: 1250
Charge press. hPa: -	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40)	Del. quyntity cm3/: 61.062.0
2nd speed 1/min: 2000	1000S.: (59.263.8) 18th speed 1/min: 500
Charge press. hPa: -	+ Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12

Del. quantity cm3/: 42.00...43.00 Spacing mm: 12.0 1**000**\$.: (40.20...44.80) 1st speed 1/min: 1500 Mech. shutoff: Charge press. hPa: 1000 Mech. Abstellung: KSB/ĀFB Volt: 3.TL valve 1st speed 1/min: 2000 Shutoff Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Charge press. hPa: 1000 KSB/AFB Electr. shutoff: valve Volt: 4.TL Shutoff 1/min: 325 1st speed electromagnet Volt: 12 Charge press. IPa: -Del. quantity cm3/: 13.5...21.5 Del. quantity cm3/: 0.00...3.00 1000s.: -1000s.: (0.00...3.00) Shutoff Automatic starting fuel delivery: electromagnet volt: -Damper set qty.: 2nd speed 1/min: 325 Shutoff LFG-setting: electromagnet Volt: 12 solidale con carcassa: Del. quantity cm3/: 37.00...44.00 Idle delivery: 1000s.: (36.50...44.50) 1st speed 1/min: 325 3rd speed 1/min: 200 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 76.00...78.00 1000s.: (74.50...79.50) electromagnet Volt: 12 Del. quantity cm3/: 12.00...14.00 1000s.: (10.00...16.00) 2nd speed 1/min: 375 Shutoff 4th speed 1/min: 100 electromagnet Volt: 12 Shutoff Del. quantity cm3/: 5.00...11.00 electromagnet Volt: 12 Del. quantity cm3/: 70.00...80.00 1000s.: (5.00...11.00) 1000s.: (68.00...82.00) High Idle: Shutoff electromagnet: 1st speed 1/mi: 450 Shutoff Cut-in electromagnet Volt: 12 Del. quantity cm3/: 11.00...13.00 min voltage : 10.0 Rated voltage : 12.0 1000s.: (9.00...15.00) Mounting and assembly dimensions: Residual: Designation 1.Rotacao 1/min: 550 K mm: 3.2...3.4 Shutoff KF mm: 5.2...5.6 electromagnet Volt: 12 Del. quantity cm3/: 2.50...3.50 mm: 0.9...1.3 MS LDA stroke mm: 7.1 1000s.: (0.50...5.50) mm: 34.3...38.3 Ya mm: 67.1...81.7 Yb Part-load del.at 3rd inj.-qty. terza fermo della portata Remarks: stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Add 12 mm spacer at 3rd

M18

part-load-quantity stop.

Add 12 mm spacer at 4th part-load-quantity stop.

Pump with slave plunger

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor—head end

Note remarks

Test sheet : MB

Edition : 22.08.94

Replaces

Test oil : ISO-4113

Combination no. : 0 400 074 883

Injection pump

Pump designation : PES4M55C32ORS185 EP type number : 0 410 064 006

Governor

Governor design. : RSF375/1900M78 Governor no. : 0 420 021 274

Customer-spec. information Customer : MB-PKW

: OM601 D23 Engine

1st version kW : 72.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly : 1 688 901 111

Opening

pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270

Tolerance $+ - ^{\circ}$: 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 13.75...13.85

Del.quantity cm3/ : 5.9...6.0

100 s: (5.8...6.1)

cm3 : 0.3Spread

100 s: (0.35)

rpm : 375.02nd speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.6...0.7

100 s: (0.5...1.0)

Spread cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 1850

Del.quantity : 58.0...61.3)

: 3.00 Spread cm3

1600 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.10...8.50

Speed rpm : 2200 4th rack travel in: 2600

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER **POSITION**

rpm

Rack travel in mm: 1,9...2.0

LOW IDLE 1

Control lever

position degrees: 6...10

Setting point w/out bumper spring

M20

Speed rpm : 375 Rack travel in mm: 6.0 Testing: Speed : 250 rpm Minimum rack trave: 11.0 : 375 FIDM Rack travel in mm : 5.90...6.10 Speed : 900 rpm Maximum rack trave: 1.90 SET IDLE AUXILIARY SPRING Speed rpm : 500 Rack travel in mm: 4.1...4,3 : (4.0...4,4) TORQUE CONTROL Torque control curve - 1st version 1st speed : 1500 rom Rack travel in m: 13.10...13.30 2nd speed : 1900 rom Rack travel in m: 12.50...12.70 3rd speed rpm : 900 Rack travel in m: 10.60...10.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rom Pressure hPa : 1600 Rack travel mm : -0.30...-0.70 Measurement Speed 1/min: 900 1st pressure hPa : 1100 Rack travel in m: -3.10...3.30 2nd pressure hPa : 750 Rack travel in m: -4.70...5.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1850 Speed Del.quantity cm3/: 57.0...59.0 1000 s: (56.0...60.0) Aneroid pressure h: 1850 : 1900 Speed rpm Del.quantity cm3/: 54.8...57.2 1000 s: (53.8...58.2) Aneroid pressure h: 1100 Speed rpm : 900 Del.quantity cm3/: 39.8...41.2 1000 s: (38.7...42.3)

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/ : 52.0...0.0 1000 s: (52.0...0.0)

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version Aneroid pressure h: 1850 rpm : 2200 Speed

Rack travel in mm : 8.10...8.50 Del.quantity cm3/ : 28.8...33.2

1000 s: (27.8...34.2)

LOW IDLE

Speed Speed rpm : 375
Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 6.0...7.0 1000 s: (5.5...10.1)

SETTING PNUEUMATIC FAST IDLE (ELA)

Speed rpm : 425 Rack travel in mm: 7.2...8.8 Del.quantity cm3/: 16.0...24.0

10:00 s: -

Vacuum hPa : 400

Remarks:

TESTING PNEUMATIC SHUTOFF DEVICE -Control lever at idle stop. With n = 315 1/min. and pu = 450 mbar, control rod must move quickly to control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of cam following start of delivery of cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

CORRECTION OF INJECTED-FUEL QUANTITY -Set max. change plus/minus 0.75 mm control-rod travel at correction screw on ALDA pressure box.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MB

Edition

: 22.08.94

Replaces

: 11.01.93

Test oil

: ISO-4113

Combination no.

: 0 400 074 886

Injection pump

Pump designation : PES4M55C32DRS167

EP type number : 0 410 054 960

Governor

Governor design. : RSF375/2000M55-7

Governer no.

: 0 420 021 268

Customer-spec. information

Customer

: MB-PKW

Engine

: 0M501

1st version kW

: 59.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly

: 1 688 901 111

Opening

pressure, bar

: 147...150

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order

: 1-3-4-2

M23

Phasing : 0-90-180-270

Tolerance + - °

: 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 3.8...3.9

100 s: (3.7...4.0)

Spread

cm3 : 0.2

100 s: (0.3)

2nd speed

rpm : 375.0

Rack travel in mm : 5.1...5.3

Del.quantity cm3/: 0.6...0.7

100 s: (0.5...1.0)

Spread

cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000

Del.quantity

: 38.0...39.0 1000 : (37.0...40.0)

Spread

: 2.50

cm3

1000 : (3.00)

RATED SPEED

1st version

Control Lever

position degrees: 50...0

3rd rack travel in: 8.65...9.15

Speed

rpm : 2200

4th rack travel in: 2550

: 0.00...1.00 Speed rpin

SET IDLE CONTROL LEVER **POSITION**

Speed

rpm

: 1000

Rack travel in mm: 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Speed

rpm : 375

Rack travel in mm : 5.2 Testina:

: 250 Speed rom Minimum rack trave: 10.2 Speed rpm : 375

Rack travel in mm : 5.10...5.30

: 1000 Speed COM Maximum rack trave: 1.50

SET IDLE AUXILIARY SPRING : 450 rpm Rack travel in mm: 3,8...4,0

: (3,7...4,1)

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

2nd speed

Rack travel in m: 12.10...12.20 nd speed rpm : 1800 Rack travel in m: 11.80...12.00

: 2000 3rd speed

Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 1800 Speed rom

Del.quantity cm3/: 40.0...41.6

1000 s: (39.0...42.6)

Spread cm3 : 2.50

1000 s: (3.0)

: 2000 Speed rpm

Del.quantity cm3/: 40.0...42.0 1000 s: (39.0...43.0)

Spread cm3 : 2.50

1000 s: (3.00)

STARTING FUEL DELIVERY

: 100 rpm

Del.quantity cm3/: 54.0...0.0

1000 s: (54.0...0.0)

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Speed : 2200 rpm

Rack travel in mm : 8.65...9.15

Del.quantity cm3/: 29.0...33.0 1000 s: (28.0...34.0)

cm3 : 2.50Spread

1000 s: (3.00)

LOW IDLE

Speed rpm

Rack travel in mm : 5.10...5.30

Del.quantity cm3/: 6.0...7.0 1000 s: (5.5...10.0)

cm3 : 1.00Spread 1000 s: (1.50)

SETTING PNUEUMATIC FAST IDLE

(ELA)

rpm : 425 Speed

Rack travel in mm: 6.5...8.1 Del.quantity cm3/: 12.0...20.0 1000 s: -

hPa : 400 Vacuum

Remarks:

Start-of-delivery sensor system: adjustment and blocking with device

KDEP 1077 = 15.3°...15.7° (15.2...15.8°) angular displacement of cam following start of delivery of cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular

displacement of cam

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With n = 375 1/min. and pu = 450 mbar,

control rod must move quickly to

control-rod travel = 0 mm

Sliding sleeve pre-travel = 6.25 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

: 22.03.94 Edition Replaces : 13.10.92

Test oil : 1SO-4113

Combination no. : 0 400 074 889

Injection pump

Pump designation : PES4M55C32ORS172 EP type number : 0 410 054 958

Governor

Governor design. : RSF375/2009M75-2

: 0 420 021 166 Governer no.

Customer-spec. information Customer : MB-PKW

: 0M601 Engine

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

: 1 688 901 111 assembly

0pening

pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 1.70...1.80 Prestroke mm

: (1.65...1.85)

Rack travel in mm : 20.00...22.00 Firing order : 1-3-4-2

M25

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 3.3...3.4

100 s: (3.2...3.5)

Spread cm3 : 0.15

100 s: (0.25)

2nd speed rpm : 375.0

Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 0.6...0.7

100 s: (6.5...1.0)

cm3 : 0.1Spread

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 33.0...34.0

1000 : (32.0...35.0)

Spread : 1.50 cm3

1000 : (2.50)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.20...8.60

: 2500 Speed rpm

4th rack travel in: 2950

rpm : 0.00...1.00Speed

SET IDLE CONTROL LEVER

POSITION

rpm

Rack travel in mm: 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

rpm : 375 Speed

Rack travel in mm: 6.4 Testing: STARTING FUEL DELIVERY Speed : 250 man Minimum rack trave: 11.0 : 375 rpm Speed rpm : 100 Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 52.0...0.0 Rack travel in mm : 2.5 **1000** s: (52.0...0.0) : 620...720 Speed mqn Rack travel in mm : 20.10...0.00 Speed FDM : 900 Maximum rack trave: 1.50 HIGH IDLE SET IDLE AUXILIARY SPRING 1st version Speed rpm : 450 Aneroid pressure h: 1100 Rack travel in mm : 4,8...5,0 : (4,7...5,1) Speed rpm : 2500 Rack travel in mm : 8.20...8.60 Del.quantity cm3/: 18.0...22.0 TORQUE CONTROL 1000 s: (17.0...23.0) Torque control curve - 1st version Spread cm3 : 2.501st speed rpm : 900 1000 s: (3.00) Rack travel in m: 12.30...12.40 2nd speed magn : 1400 LOW IDLE Rack travel in m: 11.95...12.15 rpm : 2300 Speed rpm : 375 Rack travel in mm : 6.40...6.60 3rd speed Rack travel in m: 11.30...11.50 Del.quantity cm3/: 6.0...7.0 1000 s: (5.5...10.0) Arieroid/Altitude Compensator Test Spread cm3 : 1.001000 s: (2.50) 1st version SETTING PNUEUMATIC FAST IDLE Setting (ELA) Speed ; 900 man Pressure hPa : 950 Rack travel mm : 0.00...0.20 Speed rpm : 425 Rack travel in mm : 8.1...9.7 Measurement Del.quantity cm3/: 12.0...20.0 1000 s: -1/min: 900 Speed Vacuum hPa : 400 1st pressure hPa : 900 Rack travel in m: 0.50...0.70 Remarks: 2nd pressure hPa : 750 : ARD 900 1/MIN Rack travel in m: 1.80...2.20 : RW=1.55...1.65 MM : FM=6.5...8.5 FUEL DELIVERY CHARACTERISTICS Sliding sleeve pre-travel = 6.5 mm 1st version Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of Aneroid pressure h: 1100 Speed rpm : 1400 Del.quantity cm3/ : 33.0...34.6 1000 s: (32.0...35.6) cam following start of delivery of Spread cm3 : 2.50cylinder no. 1. 1000 s: (3.0) Aneroid pressure h: 1100 Difference in start of delivery between : 2300 max. and min. value = max. 1° angular Speed rpm Del.quantity cm3/: 34.0...36.0 1000 s: (33.0...37.0) Spread cm3 : 2.50 1000 s: (3.00) displacement of cam CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

M26

-Control-lever position 49°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 22.08.94 : 22.03.91 Edition Replaces Test oil : ISO-4113 Combination no. : 0 400 074 896 Injection pump Pump designation : PES4M55C320RS104-1 EP type number : 0 410 054 963 Governor Governor design. : RSF375/2200M21 : 0 420 021 148 Governer no. Customer-spec. information Customer : MB-NFZ Engine : 0M616 2.4L ADA 1st version kW : 55.0 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 012 Inlet press., bar: 1.00 Test nozzle holder : 1 688 901 111 assembly Opening | pressure, bar : 147...150 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 1.70...1.80 Prestroke mm

: (1.65...1.85)

: 1-3-4-2

Rack travel in mm : 20.00...0.00

Phasing : 0-90-180-270 Tolerance + - ° : 0.03 (1.00) BASIC SETTING rpm : 10001st speed Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 3.7...3.8 100 s: (3.5...3.9) Spread cm3 : 0.2100 s: (0.3) 2nd speed rpm : 375.0Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 0.7...0.8 100 s: (0.65...1.0) Spread cm3 : 0.1100 s: (0.1) FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000Aneroid pressure h: 1100 : 37.0...38.0 Del.quantity 1000 : (36.0...39.0) Spread cm3 : 2.50 1000 : (3.00)RATED SPEED 1st version Control lever position degrees: 50...0 3rd rack travel in: 8.20...8.60 Speed rpm : 2350 4th rack travel in: 2950 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 8...12 Setting point w/out bumper spring Speed rpm : 375 Rack travel in mm : 6.1 Testing: Speed : 250 rpm Minimum rack trave: 10.00 rom : 375 Rack travel in mm : 6.10...6.30

Firing order

Rack travel in mm : 2.00 : 730...830 Speed rpm Speed : 1000 rpm

Maximum rack trave: 1.50

SET IDLE AUXILIARY SPRING rpm : 450 Speed

Rack travel in mm : 5.10...5.30 : (5.00...5.40)

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 12.60...12.70

rpm : 1700 2nd speed

Rack travel in m: 12.20...12.40

3rd speed rpm : 2150

Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 1000 Pressure hPa : 950

Measurement

1/min: 1000 Speed

1st pressure hPa : 900

Rack travel in m: 0.50...0.70

2nd pressure hPa : 750

Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm : 1700 Del.quantity cm3/ : 37.5...39.1

1000 s: (36.5...40.1)

cm3 : 2.50Spread 1000 s: (3.)

Aneroid pressure h: 1100 Speed : 2150

rpm Del.quantity cm3/: 37.3...39.3 1000 s: (36.3...40.3)

Spread cm3 : 2.50 1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 52.0...0.0

1000 s: (52.0...0.0)

NO1

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

rpm : 2350 Speed

Rack travel in mm : 8.20...8.60

Del.quantity cm3/ : 20.0...24.0

1000 s: (19.0...25.0)

Spread cm3 : 2.50

1000 s: (3.00)

LOW IDLE

Speed rpm : 375

Rack travel in mm : 6.10...6.30

Del.quantity cm3/ : 7.0...8.0

1000 s: (6.5...10.0)

Spread cm3 : 1.00

1000 s: (1.50)

Remarks:

Sliding sleeve pre-travel = 6.25 mm

TESTING PNEUMATIC SHUTOFF DEVICE -Control lever at idle stop.

With n = 375 1/min. and pu = 450 mbar, control rod must move quickly to control-rod travel = 0 mm

CHECKING THE IDLE-SPEED AUXILIARY

SPRING CUTOFF

-Control-lever position 49°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. Control-lever position 46.5°,

control-rod travel deduction must be greater than 0.2 mm after switchover

point (of starting cam).

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : 22.03.94 Edition : 03.07.89 Replaces Test oil : ISO-4113 Combination no. : 0 400 074 897 Injection pump Pump designation : PES4M55C32ORS172 EP type number : 0 410 054 958 Governor Governor design. : RSF360/2300M60-25 Governor no. : 0 420 021 132 Customer-spec. information Customer : MB-PKW Engine : 0M6O1-Abql. MJ9O 1st version kW : 53.0 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 469 990 351 Inlet press., bar: 1.00 Test nozzle holder assembly : 0 681 343 009 **Opening** pressure, bar : 172...175 Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80 : (1.65...1.85)
Rack travel in mm : 20.00...22.00
Firing order : 1- 3- 4- 2 Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 3.2...3.3

100 s: (3.1...3.4)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 335.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 0.5...0.6 100 s: (0.4...0.9)

Spread cm3 : 0.1100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1100 Del.quantity : 32.0...33.0

1000 : (31.0...34.0)

: 2.50 Spread cm3 1000 : (3.00)

RATED SPEED

1st version Control lever

position degrees: 50...0 3rd rack travel in: 8.20...8.60

: 2500 rpm Speed 4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER **POSITION**

: 1000 rpm

Rack travel in mm : 1.40...1.50

LOW IDLE 1 Control lever

position degrees: 12...16

Setting point w/out bumper spring

NO2

cm3 : 2.50 1000 s: (3.00) Speed rpm : 335 Spread Rack travel in mm: 6.6 Testina: Speed **rpm** : 250 STARTING FUEL DELIVERY Minimum rack trave: 9.00 rpm : 335 Speed Rack travel in mm : 6.50...6.70 rpm : 100 Rack travel in mm: 2.50 Del.quantity cm3/: 52.0...0.0 1000 s: (52.0...0.0) : 630...*7*30 rpm rpm : 1000 Rack travel in mm: 20.10...0.00 Speed Maximum rack trave: 1.50 HIGH IDLE SET IDLE AUXILIARY SPRING rpm : 400 Speed 1st version Rack travel in mm : 5.20...5.40 : (5.10...5.50) Aneroid pressure h: 1100 rpm : 2500 Speed Rack travel in mm : 8.20...8.60 TORQUE CONTROL Del.quantity cm3/: 17.0...21.0 1000 s: (16.0...22.0) Torque control curve - 1st version rpm : 1000 1st speed Spread cm3 : 2.50 Rack travel in m: 12.30...12.40 1000 s: (3.00) rpm : 1800 2nd speed Rack travel in m: 11.70...11.90 LOW IDLE 3rd speed rpm : 2200 Rack travel in m: 11.10...11.30 Speed rpm : 335 Rack travel in mm : 6.50...6.70 Aneroid/Altitude Del.quantity cm3/ : 5.0...6.0 Compensator Test 1000 s: (4.5...9.0) cm3 : 1.00 Spread 1000 s: (1.50) 1st version Setting SETTING/TESTING ELECTRONIC IDLE Speed CDM : 1000 REGULATION (ELR) hPa : 950 Pressure : 0.00...0.20 Rack travel mm Control lever at idle stop Measurement rpm : 360 1/min: 1000 Rack travel in mm : 13.00...14.40 Speed Del.quantity cm3/: 29.00...37.00 1st pressure hPa : 900 1000 s: -Rack travel in m: 0.50...0.70 : 1.8 Current A 2nd pressure hPa : 750 Rack travel in m: 1.80...2.20 Control lever at full-load stop rpm : 2950 Speed FUEL DELIVERY CHARACTERISTICS Rack travel in mm : 0.00...1.00 Current short-duration A: 3.0 1st version Starting test Aneroid pressure h: 1100 Speed rpm : 1800 Del.quantity cm3/: 34.5...36.1 1000 s: (33.5...37.1) Speed rpm : 100 Del.quantity cm3/:min. 1000 s: -1.8 A Spread cm3 : 2.50Remarks: 1000 s: (3.0) Aneroid pressure h: 1100 Start-of-delivery sensor system: adjustment and blocking with device Speed : 2200 rpm Del.quantity cm3/: 31.0...33.0 KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of 1000 s: (30.0...34.0) cam following start of delivery of

cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE
-Control lever at idle stop.
With n = 335 1/min. and pu = 450 mbar,
control rod must move quickly to
control-rod travel = 0 mm

Sliding sleeve pre-travel = 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : LIE 5,6 a10 : 4.8.94 Edition Replaces : 24.07.90 Test oil : ISO-4113 Combination no. -: 0 400 874 233 K Injection pump Pump designation : PES4A95D410RS2685 EP type number : 0 410 894 996 Governor Governor design. RSV400...1000A1c2187 : 0 420 232 387 Governer no. Customer-spec. information Customer : LIEBHERR : D904 TB Engine 1st version kW : 74.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 2.70...2.80 : (2.65...2.85) Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance r = 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 980

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 400.0Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 91.5...93.5 Del.quantity 1000 : (89.5...95.5)

: 3.50 cm3 Spread 1000 : (6.00)

1st version

RATED SPEED

Control lever position degrees: 91...99 Testina: 1st rack travel in: 9.20 rpm : 1020...1040 Speed 2nd rack travel in: 4.00 rpm : 1030...1060 Speed 3rd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1220 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 400 Rack travel in mm: 6.30...6.50 Rack travel in mm: 2.00 rpm : 520...580 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.50...10.60 3rd speed rpm : 720 Rack travel in m: 10.30...10.50 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0) Speed rpm : 700 Del.quantity cm3/: 91.0...94.0 1000 s: (88.5...96.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1020...1040 Speed STARTING FUEL DELIVERY

Speed rpm : 400
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

N₀6

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,3 d 1 : 8.7.94 Edition Replaces : 16.02.94 Test oil : ISO-4113 Combination no. : 0 403 456 116 Injection pump Pump designation : PES6MW100/321RS1215 EP type number : 0 413 406 205 Governor Governor design. : RQ250/1200MW84-8 Governer no. : 0 420 082 063 Customer-spec. information Customer : MAN Engine : D 0826 LF 04 : 199.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle nolder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.5...3.6 : (3.3.45...3.65) Rack travel in mm: 9.0...12.0

Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1BASIC SETTING 1st speed rpm: 1000 Rack travel in mm: 13.60...13.70 Del.quantity cm3/: 16.7...16.9 100 s: (16.4...17.2) cm3 : 0.4Spread 100 s: (0.7) 2rid speed irpm : 250.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.1...2.5 100 s: (1.85...2.75) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1320 1st speed : 9.3...9.7 travel mm 2nd speed : 1255 rpm travel mm : 6.5...6.7 3rd speed rpm : 360 travel mm : 3.9...4.5 4th speed : 250 rpm travel mm : 1.6...2.0 GUIDE SLEEVE POSITION Control-Lever position Degree: 108...110 Speed rpm : 600 Rack travel in mm : 19.2...20.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1200
Del quantity : 167.5...169.5 1000 : (164.5...172.5) Spread cm3 : 4.00 1000 : (7.50)

Spread cm3 : 4.00RATED SPEED 1000 s: (7.5) Aneroid pressure h: 1200 1st version Speed rpm : 600 Del.quantity cm3/ : 174.0...178.0 Control Lever position degrees: 91...99 1000 s: (171.0...181.0) Spread cm3 : 6.00Setting point: 1000 s: (9.00) Speed rpm : 600 Aneroid pressure h: 1200 Rack travel in mm : 20.0 Speed rpm : 1200 Del.quantity cm3/: 163.0...167.0 1000 s: (160.0...170.0) Testing: 1st rack travel in: 12.6 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpn: : 1340...1370 Speed 1000 s: (75.0...81.0) 4th rack travel in: 1450 Speed rpm : 0.00...1.00**BREAKAWAY** LOW IDLE 1 Control lever 1st version position degrees: 67...75 1mm rack travel less than Setting point w/out bumper spring rpm : 250 full load rack tr: 12.6 Speed rpm : 1245...1260 Speed Rack travel in mm: 5.6 Speed Testing: STARYING FUEL DELIVERY Speed rpm : 150 Minimum rack trave: 7.5 **rpm** : 250 Speed rpm : 100 Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 250 Rack travel in mm : 5.5...5.7 1st version Setting Del.quantity cm3/: 21.0...25.0 : 500 1000 s: (18.5...27.5) Speed rpm Pressure hPa : 1200 cm3 : 3.50Spread Rack travel mm : 13.6...13.7 1000 s: (5.50) Measurement Remarks: $1/\min : 500$ Speed : MAN #3-7137 1st pressure hPa : -Rack travel in m: 9.5...9.6 2nd pressure hPa : 200 Rack travel in m: 10.0...10.1 3rd pressure hPa : 700 Rack travel in m: 12.3...12.6 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1000 Del.quantity cm3/ : 167.5...169.5 1000 s: (164.5...172.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a Edition : 05.07,94 Replaces : 27.09.93 Test oil : ISO-4113

Combination no. : 9 400 083 449

Injection pump Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. RSV400...1100A2C2209

: 9 420 083 201 Governer no.

Customer—spec. information : CUMMINS Customer

Engine : 6 CT 8.3 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Firing order : 1-5-3-6-2-

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.8)

rpm : 400.0 2nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.6...2.0

100 s: (1.4...2.3) cm3 : 0.5Spread

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 90.0...92.0 Del.quantity

1000 : (88.0...94.0)

: 3.50 Spread cm3 1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 85...93

Testina:

1st rack travel in: 9.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rom : 400 Rack travel in mm: 5.2

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.30...10.40

2nd speed rpm : 500 Rack travel in m: 10.30...10.50

5th speed rpm : 400

Rack travel in m: 10.70...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 75.0...79.0 1000 s: (73.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 134.0...150.0

1000 s: (131.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.60...5.80

Del.quantity cm3/: 16.5...20.5 1000 s: (14.0...23.0)

cm3 : 5.50 Spread

1000 s: (9.00)

:

Remarks:

Start-of-delivery blocking 11° after start of delivery of cylinder no. 1.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW_

Edition : 17.08.94

replaces :-

Calibrating oil : ISO-4113

Injection pump : VE6/10F2250L614 Type number : 0 460 406 078

Customer Part-No. :

Customer-specific information

Customer : VW

Engine : STEYER TD/LLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. *C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 111

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery
Prestroke mm: (from BDC): -

Injection—pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1600 Charge press. hPa: 750

Setting value mm: 1.10...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1600 Charge press hPa: 750

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1600 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 39.50...40.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 10005.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000\$.: 29.0...30.0

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375 Charge press hPa: -Del. quantity cm3/

1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 10908.: (3.0)

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 750

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 45.00...75.00

mind 1000s.: 45.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250

Charge press hPa: 750	+	Shutoff	
TD travel mm: 0.301		electromagnet Volt:	12
mm: (0.00	1.40)	Del. quantity cm3/:	34.035.0
electromagnet Volt: 12 2nd speed 1/min: 1600	†	10005.:	(31.537.5)
	Ť	2nd speed 1/min:	
Charge press hPa: 750 TD travel mm: 1.101	50 T	Charge press. hPa: Shutoff	750
mn: (0.60			42
Shutoff	2.00)	electromagnet Volt:	
electromagnet Volt: 12	I	Del. quantity cm3/: 10005.:	
3rd speed 1/min: 2150	I	3rd speed 1/min:	
Charge press hPa: 750	\mathbf{I}	Charge press. hPa:	
TD travel mm: 2.803	1.60	Shutoff	1 20
mm: (2.50	3.90)	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt: 12	1	10005.	(9.017.0)
3	+	4th speed 1/min:	2400
Supply-pump pressure charact	eristic:	Charge press. hPa:	750
	+	Shutoff	
1st speed 1/min: 1250	+	electromagnet Volt:	12
Charge press. hPa: 750	+	Del. quantity cm3/:	
Supply-pump	+		(26.038.0)
pressure bar: 5.205	1.80	5th speed 1/min:	
Shutoff	+	Charge press. hPa:	750
electromagnet Volt: 12	†	Shutoff	
2nd speed 1/min: 1600	†	electromagnet Volt:	
Charge press. hPa: 750	†	Del. quantity cm3/:	
Supply-pump pressure bar: 6.106	70		(38.8043.20)
pressure bar: 6.106 Shutoff	†	6th speed 1/min:	
electromagnet Volt: 12	Ť	Charge press. hPa: Shutoff	750
3rd speed 1/min: 2150	Ť		10
Charge press. hPa: 750	Ι	electromagnet Volt: Del. quantity cm3/:	70 50 /0 50
Supply-pump	I		(37.8042.20)
pressure bar: 7.508	: 10 I	7th speed 1/min:	
Shutoff	$\frac{1}{1}$	Charge press. hPa:	
electromagnet Volt: 12	1	Shutoft	300
	1	electromagnet Volt:	12
Overlow quantity at overflow	valve:	Del. quantity cm3/:	
	+		(31.5037.50)
1st speed 1/min: 500	+	8th speed 1/min:	
Charge press. hPa: -	-}-	Charge press. hPa:	750
Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	12
Overflow : 41.70		Del. quantity cm3/: 1000s.:	36.5039.50
quantity cm3/10s: (26.70	.98.40) †		(35.0041.00)
2nd speed 1/min: 2150	†	9th speed 1/min:	
Charge press. hPa: 750	†	Charge press. hPa:	-
Shutoff electromagnet Volt: 12	†	Shutoff	12
Overflow : 55.60	130 m I	electromagnet Volt:	
quantity cm3/10s: (40.60		Del. quantity cm3/:	(26.5032.50)
quarterty (m3/103: (40.00	. 134.66) I	10003	(20.3032.30)
Delivery-quant. and breakawa	v char ·	Mech. shutoff:	
TISTERY SERVICE WITH DI CHINANA	, 51.00	Hom. Sidtori.	
	1	Electr. shutoff:	
1nd speed 1/min: 800	+		
Charge-air pressure-setting	+	1st speed 1/min:	375
point hPa: 300	+	Charge press. hPa:	
	• +		

Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...11.00 1000s.: (6.00...14.00) Automatic starting fuel delivery: 1st speed 1/min: 400 Charge press. hPa: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -2nd speed 1/min: 260 Shutoff electromagnet Volt: 12 Det. quantity cm3/: 45.00...85.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 6.2...6.6 MS mm: 1.6...2.0 mm: 8.5...10.5 mm: 69.7...88.3 Ya Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW Edition : 19.08.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L470-2 : 0 460 406 079 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 Charge press. hPa: 750

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Charge press hPa: 750

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750 Del. quantity cm3/

1000s.: 41.5...42.5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600

Del. quantity cm3/ 1000s.: 24.5...25.5

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/ 1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2250 Charge press hPa: 750 Del. quantity cm3/ 1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...65.00

1000s.: 35.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: -

Inj.-qty. cm3/

difference 1000S.: -1.0...-5.0 #

Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
TD-travel dif.measurement	+ Overflow : 41.7083.40
correttore anticipo iniezione (SV)	quantity cm3/10s: (26.7098.40)
1. Speed 1/min: 1250	+ 2nd speed 1/min: 2000
Charge press hPa: -	+ Charge press. hPa: 750
TD-travel	+ Shutoff
difference mm: -0.60.8 #	+ electromagnet Volt: 12
Shutoff	- Overflow : 55.60139.00
electromagnet Volt: 12	quantity cm3/10s: (40.60754.00)
ceceronagner voce. 12	T quantity (mb/105, (40.00()4.00)
Inspection-pump test specifications	Delivery-quant. and breakaway char.:
Test specifications in parentheses	T Decree y quarte. and breakaway char.
rest specifications in parentneses	I
Timing-device characteristic:	1nd speed 1/mir: 750
	Charge-air pressure-setting
1st speed 1/min: 1000	+ point hPa: 350
Charge press hPa: 750	+ LDA-stroke mm: 5.9
TD travel mm: 0.601.40	+ Shutoff
mm: (0.301.70)	
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1250	+ Del. quantity cm3/: 34.035.0
	† 1000s.: (31.537.5)
Charge press hPa: 750	+ 2nd speed 1/min: 2400
TD travel mm: 2.202.60	† Charge press. hPa: 750
mm: (1.703.10)	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 0.06.0
3rd speed 1/min: 1600	† 1000s.: -
Charge press hPa: 750	+ 3rd speed 1/min: 2250
TD travel mm: 4.004.80	+ Charge press. hPa: 750
mm: (3.705.10)	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 10.0014.00
_	+ 1000s.: (8.0016.00)
Supply-pump pressure characteristic:	+ 4th speed 1/min: 2175
	+ Charge press. hPa: 750
1st speed 1/min: 600	+ Shutoff
Charge press. hPa: 750	+ electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 19.0029.00
pressure bar: 3.303.90	1000s.: (18.0030.00)
Shutoff	+ 5th speed 1/min: 1750
electromagnet Volt: 12	+ Charge press. hPa: 750
2nd speed 1/min: 1250	+ Shutoff
Charge press. hPa: 750	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 36.6038.60
pressure bar: 5.205.80	10005:: (35.4039.80)
Shutoff	
electromagnet Volt: 12	
3rd speed 1/min: 2000	+ Charge press. hPa: 750
	+ Shutoff
Charge press. hPa: 750	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 41.5042.50
pressure bar: 7.508.10	† 1000s.: (39.8044.20)
Shutoff	+ 7th speed 1/min: 600
electromagnet Volt: 12	+ Charge press. hPa: 750
	+ Shutoff
Overlow quantity at overflow valve:	+ electromagnet Volt: 12
A	† Del. quantity cm3/: 37.7040.70
1st speed 1/min: 600	† 1000\$.: (36.2042.20)
Charge press. hPa: -	+ 8th speed 1/min: 600
	+ Charge press. hPa: -

Shutoff	+ Supply pump-
electromagnet Volt: 12 Del. quantity cm3/: 24.5025.50	pressure : -0.10.3 " difference bar: -
10005.: (22.0028.00)	+ difference bar: - + Shutoff
	electromagnet Volt: 12
Mech. shutoff:	+ 2nd speed 1/min: 1250
	+ Charge press. hPa: -
Electr. shutoff:	Supply pump-
1st speed 1/min: 375	pressure :-0.50.9 # difference bar: -
Charge press. hPa: -	+ Shutoff
Del. quantity cm3/: 0.003.00	+ electromagnet Volt: 12
1000s.: -	+
Shutoff electromagnet volt: -	+ Automatic starting fuel delivery:
etecti dilagnet vott.	1st speed 1/min: 520
Idle delivery:	+ Shutoff
•	+ electromagnet Volt: 12
1st speed 1/min: 375	+ Del. quantity cm3/: 15.0035.00
Shutoff	† 10COS.: -
electromagnet Volt: 12 Del. quantity cm3/: 7.009.00	2nd speed 1/min: 320
1000s.: (4.0012.00)	+ Shutoff
2nd speed 1/min: 500	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 35.0075.00
electromagnet Volt: 12	† 1000s.: -
Del. quantity cm3/: 0.04.0 1000s.: -	3rd speed 1/min: 100
10005	+ Shutoff
Load-dependent start of delivery:	electromagnet Volt: 12
Inj.—qty.dit.measurement:	- Del. quantity cm3/: 35.0065.00
4-1 4 44 1 4050	† 1000s.: -
1st speed	Shutoff of octnomorate
Injqty. cm3/ : -0.51.5 "	Shutoff electromagnet:
difference 1000s.: -	- Cut-in
Shutoff	+ min voltage : 10.0
electromagnet Volt: 12	+ Rated voltage : 12.0
2nd speed 1/min: 1250	Mounting and passible discusions
Charge press. hPa: - Injqty. cm3/: 0.03.0 * Z	Mounting and assembly dimensions:
difference 1000S.: -	+ Designation
Shutoff	+ K mm: 3.23.4
electromagnet Volt: 12	+ KF mm: 6.26.6
TD-travel dif.measurement:	+ MS mm: 0.91.3
correttore anticipo iniezione (SV):	+ LDA stroke mm: 5.9 + Ya mm: 31.533.5
1st speed 1/min: 1250	+ Yb mm: 50.362.6
Charge press. hPa: -	+
TD-travel : -1.11.5 *	+ Ya = Distance between VE flange and
difference mm: - Shutoff	+ speed-control lever in idle
electromagnet Volt: 12	<pre>position : Measurement point = edge of control</pre>
Coot, Singifice Vact. 12	+ lever on drive end
SP press.—dif.measurement:	1000
pompa di mandata (FP):	+
1st speed 1/min: 1250	+ Yb = Distance between VE flange and
Charge press. hPa: -	speed-control lever in rated speed
	position Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

: 17.08.94 Edition

replaces

Calibrating oil : ISC-4113

Injection pump : VE6/10F2150L398-1

Type number : 0 460 406 080

Customer Part-No. :

Customer-specific information

Customer

Engine : 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Setting value mm: 4.40...4.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 6.00...6.60

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 29.5...30.5

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2325 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 35.00...65.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: -8.00..-12.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1500

TD-travel

difference mm: -0.6..-0.8 #

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min:		+	Shutoff
TD travel mm:	1.802.60	+	electromagnet Volt: 12
	(1.502.90)	+	Del. quantity cm3/: 21.5023.50
electromagnet Volt:		Ť	1000\$.: (20.3024.70)
2nd speed 1/min: TD travel mm:	4.404.80	†	4th speed 1/min: 1850
	(3.905.30)	Ī	Shutoff
Shutoff	(3.703.30)	Ι	electromagnet Volt: 12 Del. quantity cm3/: 23.2025.80
electromagnet Volt:	12	I	10005:: (21.5027.50)
3rd speed 1/min:		1	5th speed 1/min: 1250
	5.105.90	1	Shutoff
	(4.806.20)	+	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 29.5030.50
electromagnet Volt:	12	Ŧ	1000s.: (27.8032.20)
-		+	6th speed 1/min: 750
Supply-pump pressure	e characteristic:	+	Shutoff
A-4 A /	750	+	electromagnet Volt: 12
1st speed 1/min:	751.)	+	Del. quantity cm3/: 26.0029.00
Supply-pump	3.804.40	+	1000s.: (24.5030.50)
pressure bar: Shutoff	3.604.40	Ť	Mach chutaff.
electromagnet Volt:	12	T	Mech. shutoff:
2nd speed 1/min:		I	Electr. shutoff:
Supply-pump	1,500	1	Eccur. Silatori.
pressure har:	6.005.60	1	1st speed 1/min: 375
Shutoff		4	Charge press. hPa: -
electromagnet Volt:	12	+	Del. quantity cm3/: 0.003.00
3rd speed 1/min:	2150	+	1000s.: -
Supply-pump		+	Shutoff
	7.908.50	÷	electromagnet volt: -
Shutoff	40	+	
electromagnet Volt:	12	†	Idle delivery:
Overlow quantity at	overflow valve:	Ī	1st speed 1/min: 375
over tow quarterly at	over row vacve.	I	Shutoff
1st speed 1/min:	750	1	electromagnet Volt: 12
Shutoff		1	Del. quantity cm3/: 7.009.00
electromagnet Volt:	12	+	1000s.: (4.0012.00)
Overflow :	41.7083.40	+	2nd speed 1/min: 500
	(26.7098.40)	+	Shutoff
2nd speed 1/min:	2150	†	electromagnet Volt: 12
Shutoff	40	+	Del. quantity cm3/: 0.03.0
electromagnet Volt:		†	1000s.: -
	55.60139.00	†	A modulation dank of the C. J. I.
quantity cm3/10s:	(40.00/54.00)	†	Load-dependent start of delivery:
Delivery-quant, and	hnookayay chan	†	Inj.—qty.dif.measurement:
becivery quarts. and	breakaway char	T	1st speed 1/min: 1500
		Ι	Inj.—qty. cm3/ : 0.03.0 * Z
1nd speed 1/min:	2500	I	difference 1000s.: -
Shutoff		1	Shutoff
electromagnet Volt:	12	1	electromagnet Volt: 12
Del. quantity cm3/:		+	
1000s.:		+	TD-travel dif.measurement:
2nd speed 1/min:	2275	+	correttore anticipo injezione (SV):
Shutoff	40	+	1st speed 1/min: 1500
electromagnet Volt:	72	†	TD-travel : -0.81,8 *
Del. quantity cm3/:	14.5U24.5U	†	difference mm: -
	(13.5025.50)	†	Shutoff
3rd speed 1/min:	210U	+	electromagnet Volt: 12

SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.3...-1.1 * pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 500 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...35.00 1000s.; -1/min: 300 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...75.00 1000s.: -1/min: 100 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 1000s.: -Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: -KF mm: -MS mm: mm: 31.5...33.5 Ya mm: 51.2...62.4 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

Edition : 19.08.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R539-1

Type number : 0 460 424 108

Customer Part-No. :

Customer-specific information

Customer

: NISSAN

Engine

: B 4.40 LKW "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening |

Pressure bar: 207.00...210.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Setting value mm: 1.30...1.50

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100

Setting value bar: 6.90...7.50

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 69.50...70.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0

1000s.: -

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0

1000s.: -

Full-load speed regulation

Speed 1/min: 1575

Del. quantity cm3/

1000s.: 52.00...56.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 95.00...155.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 1100 mm: 1.30...1.50 mm: (0.70...2.10) TD travel

Shutoff

electromagnet Volt: 24

1/min: 1000 3rd speed

mm: 0.40...1.00 TD travel

mm: (0.00...1.50)

Shutoff

electromagnet Volt: 24 1/min: 1300 4th speed

	2.603.20 - (2.103.70) -	Charge press. hPa: 1200 Shutoff
Shutoff	(2.105.10)	
	2/	electromagnet Volt: 24
electromagnet Volt:	4400	Del. quantity cm3/: 73.578.5
5th speed 1/min:		1000\$.: (72.080.0)
	3.103.70	+ 5th speed 1/min: 1000
	(2.604.20)	- Shutoff
Shutoff	-	electromagnet Volt: 24
electromagnet Volt:	24	- Del. quantity cm3/: 73.078.0
		10005.: (71.579.5)
Supply-pump pressure	e characteristic:	5th speed 1/min: 840
out or bank biesour	cliaracter istic.	Shutoff
1st speed 1/min:	500	
- ·	- 300	electromagnet Volt: 24
Supply-pump	/ 50 5 40	Del. quantity cm3/: 73.574.5
	4.505.10	1000s.: (70.577.5)
Shutoff	-	} 7th speed
electromagnes Volt:	24 -	Shutoff
2nd speed 1/min:	1100	electromagnet Volt: 24
Supply-pump		Del. quantity cm3/: 69.570.5
pressure bar:	6.907.50	10008.: (66.573.5)
	0.707.50	10003.1 (00.3/3.3/
Shutoff	-	
electromagnet Volt:		Mech. shutoff:
3rd speed 1/min:	1400 -	Hech. Abstellung:
Supply-pump	-	ļ
pressure bar:	8.108.70	1st speed
Shutoff	-	Del. quantity cm3/: 0.003.00
electromagnet Volt:	2/.	
etectromagner vott.	.4	10005.: (0.003.00)
	- · · · · ·	Shutoff
Overlow quantity at	overflow valve: -	electromagnet volt: 24
	-	 -
1st speed 1/min:	500 -	Flectr. shutoff:
Shutoff	-	
electromagnet Volt:	24	1st speed 1/min: 350
Overflow :	41.7086.10	
		Del. quantity cm3/: 0.003.00
quantity cm3/10s:	(20.7098.10)	1000s.: -
2nd speed 1/min:	1400 -	- Shutoff
Shutoff	-	- electromagnet volt: -
electromagnet Volt:	24	_
	55.60139.00	Idle delivery:
quantity cm3/10s:	(40.60154.00)	2000 0001100.71
quarist to	(10.00.11.151.00)	1st speed 1/min: 350
Delivery-quant. and	breakayay chan :	Shutoff
becively qualit. and	bi cakaway cilai	
		electromagnet Volt: 24
	4770	Poel. quantity cm3/: 13.0017.00
1nd speed 1/min:	1700 -	1000s.: (9.0021.00)
Shutoff	-	Dispersion cm3/: 5.0
electromagnet Volt:	24	1000s.: (5.0)
Del. quantity cm3/:	0.003.00	2nd speed 1/min: 430
1000s.:		Shutoff
2nd speed 1/min:		
	1323	electromagnet Volt: 24
Shutoff	1	Del. quantity cm3/: 0.003.00
electromagnet Volt:		1000s.: (0.003.00)
Del. quantity cm3/:	60.080.0	 -
1000s.:		Automatic starting fuel delivery:
3rd speed 1/min:	1575 -	4
Shutoff		1st speed 1/min: 250
electromagnet Volt:	2/	
		Timing valve Volt: 24
Del. quantity cm3/:		Del. quantity cm3/: 50.0090.00
	(48.060.0)	1000s.: -
4th speed 1/min:	1400	

2nd speed 1/min: 130 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 95.00...155.00
1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 95.00...155.00
1000S.: -

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 KF mm: KOT mm: 0.9...1.3 mm: 37.2...39.2 mm: 52.7...60.7 MS Υa Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : PER : 19.08.94 Edition replaces : 11.06.92 Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R240 : 0 460 426 084 Type number

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T6.60 TRUCK Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

bar: 172.00...175.00 Pressure

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.25

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 0.60...1.00 Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 98.50...99.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/

1090s.: 86.50...87.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 16.50...20.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/2 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1450 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: -mind 1000s.: 115.0 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	+	Charge-air pressure	
1st smood 1/mim.	4000	†	point hPa:	
1st speed 1/min:		Ť		6.3
Charge press hPa:		†	Shutoff	2/
	0.61.9	†	electromagnet Volt:	24
	(0.11.5)	†	Del. quantity cm3/:	
electromagnet Volt:		†		(91.0098.00)
2nd speed 1/min:		†	2nd speed 1/min:	
	1000	+	Charge press. hPa:	1000
	1.101.90	+	Shutoff	
	(0.802.20)	+	electromagnet Volt:	24
Shutoff		+	Del. quantity cm3/:	47.0053.00
electromagnet Volt:		+	1000s.:	(44.0056.00)
3rd speed 1/min:		+	3rd speed 1/min:	1300
Charge press hPa:	1000	+	Charge press. hPa:	1000
TD travel mm:	2.002.80	1	Shutoff	
mm:	(1.703.10)	+	electromagnet Volt:	24
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	74	1		(93.0100.0)
		1	5th speed 1/min:	
Supply-pump pressure	e characteristic:	1	Charge press. hPa:	
supply part pressur	e character ratife.	Ι	Shutoff	1030
1st speed 1/min:	500	T	electromagnet Volt:	2/.
Charge press. hPa:		T		
	1000	T	Del. quantity cm3/:	70,0077.00
Supply-pump	3.904.50	T		(96.00102.0)
	3.904.30	†	6th speed 1/min:	
Shutoff	2/	†	Charge press. hPa:	-
electromagnet Volt:		+	Shutoff	_,
2nd speed 1/min:		+	electromagnet Volt:	
	1000	+	Del. quantity cm3/:	
Supply-pump		+	1000s.:	(84.0090.00)
pressure bar:	6.106.70	+		
Shutoff		+	Mech. shutoff:	
electromagnet Volt:	24	+	Mech. Abstellung:	
3rd speed 1/min:	1300	+	J	
Charge press. hPa:		+	1st speed 1/min:	1300
Supply-pump		1	Charge press. hPa:	
pressure bar:	7,307.90	1	Del. quantity cm3/:	0.00. 3.00
Shutoff		1		(0.003.00)
electromagnet Volt:	24	Ĺ	Shutoff	(0.005.00)
ottott anagnet vott.	2.4	1	electromagnet volt:	2/.
Overlow quantity at	overflow valve:	1	etectionagnet vott.	C4
over con quarterly at	Over TON VACVE.	T	Electr. shutoff:	
1st speed 1/min:	500	T	Etectr. Shutoff.	
Charge press. hPa:				
Shutoff	4000	1	1.04. 000.004 1/0.00	700
	1000	+	1st speed 1/min:	
electromagnet Volt:		+	Charge press. hPa:	-
	24	+++++++++++++++++++++++++++++++++++++++	Charge press. hPa: Del. quantity cm3/:	- 0.003.00
	24 41.7083.40	+ + + + + + + + + + + + + + + + + + + +	Charge press. hPa: Del. quantity cm3/: 1000s.:	-
quantity cm3/10s:	24 41.7083.40 (26.7098.40)	+++++	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff	0.003.00 (0.003.00)
quantity cm3/10s: 2nd speed 1/min:	24 41.7083.40 (26.7098.40) 1300	+ + + + + + + + + + + + + + + + + + + +	Charge press. hPa: Del. quantity cm3/: 1000s.:	0.003.00 (0.003.00)
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa:	24 41.7083.40 (26.7098.40) 1300	+++++++++++++++++++++++++++++++++++++++	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt:	0.003.00 (0.003.00)
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff	24 41.7083.40 (26.7098.40) 1300 1000	+++++++++	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff	0.003.00 (0.003.00)
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt:	24 41.7083.40 (26.7098.40) 1300 1000	+++++++++++++++++++++++++++++++++++++++	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt:	0.003.00 (0.003.00)
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00	- -	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt:	- 0.003.00 (0.003.00) -
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt:	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00	- +-+-+-+-+-+-+-+	Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt: Idle delivery:	- 0.003.00 (0.003.00) -
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00	- * * * * * * * * * * * * * * * * * * * 	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min: Shutoff	- 0.003.00 (0.003.00) - 300
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s:	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	╶┼╶┼╌┼╌┼╌┼╌┼╌┼╌┼╌┼╌┼╌┼╌┼	Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min: Shutoff electromagnet Volt:	- 0.003.00 (0.003.00) - 300
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	- 0.003.00 (0.003.00) - 300 24 16.5020.50
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s:	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+	Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	- 0.003.00 (0.003.00) - 300 24 16.5020.50 (13.5023.50)
quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s:	24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00) breakaway char.:		Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	- 0.003.00 (0.003.00) - 300 24 16.5020.50 (13.5023.50) 5.0

1/min: 400 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 100Gs.: -3rd speed 1/min: 350 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 2.50...12.50
1090s.: -Automatic starting fuel delivery: 1/min: 150 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...95.0 2nd speed 1/min: 230 Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...85.0 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...115 Shutoff electromagnet: Cut-in : 20.0 min voltage : 24.0 Rated voltage Mounting and assembly dimensions: Designation K mm: -KF mm: KOT mm: 1.0...1.3 MS1 mm: £ 3 mm: 37.2...39.2 LDA stroke Ya mm: 50.4...58.6 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end